

RG 104, Sequence 171

8NS-104-95-171, Miscellaneous
Correspondence, working papers,
reports, studies & photographs of the
“U.S. Mint Site Selection,” 1970 - 1979.

RG 104

FY 09

UNITED STATES MINT
Denver Colorado

Architectural site plans for "New Denver Mint"
Misc. Correspondence, Working Papers, Reports,
Studies and Photographs for "US Mint Site Selection"
1951-1970

OLD FRC 104-89-0005

8NS 104-95-171

Box 2

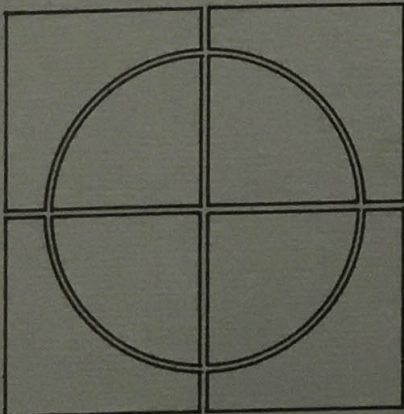
Design Praposa

DESIGN PROPOSAL

NEW DENVER MINT

PROJECT NO. N-CO. 72-600

DMJM-PHILLIPS-REISTER
ARCHITECTS-ENGINEERS-PLANNERS 910 15TH ST. DENVER, COLO. 80202



JULY 31, 1974

\$

53.33

450 450

24 000

22 50

1500

1350

1500

①

Project No. N-60-72-600
New Denver Plant

Technical Evaluation of DMJM-PR Proposal of July 31, 1974

Task 1 B(1) - Design Concept Services for Production Process

1. This task has an activity duration of 13 weeks (520 hours) in the Project Schedule dated July 1974. Some allowance of A/E Time is appropriate during the 4 week Government review period.

2. Breakdown of the cost estimate:

Categories	Man Hours	Average Rate	Amount	Total
Project Director	40	34.30	\$ 1,372	
Project Manager	400	34.13	13,652	
Subtotal	440		\$ 15,024	15,024

Process Engineering Support

Process Engineers 1680 22.51 \$ 37,817
(3 @ 560)

Process Designers 2400 19.84 47,616
(3 @ 800)

Process Production 1120 14.56 16,307
(2 @ 560)

Typing 200 11.02 2,204

Subtotal 5400 \$ 103,944

SUBTOTAL

Escalation factor @ 0.0462

TOTAL BASIC FEE

\$ 124,464

38 4.2
1,600
1,520
80
76

Programming Service

Arch & Structural

Mech & Electrical

187,272

117,830

305,102

60,000

- 620,000

305,000

Production Process

Landscaping

Vdr Engineering

Fire Consultant

Acoustical

500,000

17,000

60,000

22,000

63,000

1,641,000

VE

& Acoustical

in Production Process

31,000

1,610,000

B

24 hrs.

10 Minor

5 hr

4/8

5,000

1 to M 17

5,000

UNITED STATES GOVERNMENT

Memorandum

TO : David Gess, Project Director, GSA, Region VIII **DATE:** August 14, 1974

FROM : Frank W. Rhea, Facilities Project Manager, Bureau of the Mint

SUBJECT: Technical Evaluation of A/E Design Proposal, Project No. N-CO-72-600,
New Denver Mint

Submitted herewith are technical evaluations of portions of the DMJM-Phillips/Reister Design Proposal dated July 31, 1974. My evaluations cover the production process A/E activities, plus Programming Services for both the production process and the building/site.

Attachment A is an update of the estimated costs of the production process equipment, including equipment for the special coins and medals portion of the new mint.

5 Attachments:

- A - Equipment Cost
- B - Evaluation of Programming Services
- C - Evaluation of Process Concept
- D - Evaluation of Procurement Documents Preparation
- E - Evaluation of Process Working Drawings



Estimated Production Process Equipment
Costs Furnished by Bureau of the Mint

Costs as of 9/1/74 - Includes items to be purchased, plus relocations from present Denver Mint.

Main Facility

Scrap Bailer	\$ 300,000
12 Blanking Presses	1,080,000
6 Blank Annealing and Cleaning Lines	925,000
9 Blank Upset Mills	90,000
85 Coining Presses	5,695,000
60 Counting and Bagging Machines	300,000
Analytical Equipment	200,000
Die and Collar Manufacturing	300,000
Miscellaneous (Truck Scale, Forklifts, Battery Chargers, etc.)	700,000
Sub-Total	\$ 9,590,000

Proof Coining Facility

30 Coining Presses	2,010,000
Automatic Packaging Lines	200,000
Miscellaneous	200,000
Sub-Total	\$ 2,410,000

Equipment Total	12,000,000
Installation Costs	2,000,000

GRAND TOTAL \$14,000,000

Production Process

Process Engineering(2)	640	32.51	14,405
Process Production	240	14.36	3,494
Estimating	80	23.26	1,862
Supplies	40	11.02	441
Sub-Total	1,000		\$ 20,203

Technical Evaluation of DMJM-PR Proposal of July 31, 1974

Task 1A - Programming Services for Production Process and Building and Site Facility

1. This task is planned for seven weeks duration (280 hours) in the Project Schedule dated July 1974. Some key personnel of the A/E firm will be involved during a portion of the review period of this activity, therefore, 320 man-hours have been allowed for these personnel.
2. Bureau of the Mint Estimate:

<u>Categories</u>	<u>Man-Hours</u>	<u>Average Rate</u>	<u>Amount</u>	<u>Total</u>
Project Director	80	\$ 34.30	\$ 2,744	
Project Manager	320	34.13	10,922	
Sub-Total	400		\$ 13,666	\$ 13,666

Architectural & Support - Building

Project Architect	320	23.98	7,674	
Arch. Production	240	15.71	3,770	
Estimating	80	23.28	1,862	
Typing	60	11.02	661	
Sub-Total	700		\$ 13,967	\$ 13,967

Engineering - Building

Civil	80	17.74	1,419	
Structural	40	17.74	710	
Sub-Total	120		\$ 2,129	\$ 2,129

Engineering - Mechanical & Electrical

Mech. - HVAC	80	20.58	1,646	
Mech. - Plumbing	40	17.25	690	
Electrical	40	18.61	744	
Sub-Total	160		\$ 3,080	\$ 3,080

Production Process

Process Engineering(2)	640	22.51	14,406	
Process Production	240	14.56	3,494	
Estimating	80	23.28	1,862	
Typing	40	11.02	441	
Sub-Total	1,000		\$ 20,203	\$ 20,203

TOTAL BASIC FEE \$ 53,045

Non-Design Costs

Travel: Philadelphia - 9 men (3 days):

Air Fare - 9 @ \$254.55	- \$ 72,417	\$ 2,291
Taxi	-	40
Per diem - 27 man-days @ \$35	-	945

San Francisco - 5 men (2 days):

Air Fare - 5 @ \$173.28	-	867
Taxi	-	25
Per diem - 10 man-days @ \$35	-	350

Sub-Total	\$ 4,518
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Reproductions

	250
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Sub-Total	\$ 4,768	\$ 4,768
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Outside Special Consultant

Acoustical

80 man-hours @ \$22.51	\$ 1,801
Typing - 16 @ \$11.02	176
	\$ 1,977

Coodination & Profit @ 10%	198
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\$ 2,175	\$ 2,175
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TOTAL FEE	\$ 59,988
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3. Comparison of DMJM-PR and Bureau of the Mint Estimates:

a. Tabular comparison

<u>Categories</u>	<u>DMJM-PR</u>		<u>MINT</u>		<u>Amount Reduction</u>
	<u>Man-Hours</u>	<u>Amount</u>	<u>Man-Hours</u>	<u>Amount</u>	
Project Direction & Management	400	\$ 13,666	400	\$ 13,666	-
Arch. & Support	700	13,967	700	13,967	-
Engineering - Building	200	3,548	120	2,129	1,419
Engineering - Mech & Elec	-	4,400	160	3,080	1,320
Production Process	1,080	21,368	1,000	20,203	1,165
TOTAL BASIC FEE	2,380*	\$56,949	2,380	\$53,045	\$ 3,904

* Mech & Elec not listed by DMJM-PR

Non-Design Costs

Travel	\$ 4,518	\$ 4,518	-
Reproductions	250	250	-
Telephone & Postage	250	-	250
Sub-Total	\$ 5,018	\$ 4,768	\$ 250

Non-Design Costs

Travel: Philadelphia - 9 men (3 days):

Air Fare - 9 @ \$254.55	- \$ 72,417	\$ 2,291
Taxi	-	40
Per diem - 27 man-days @ \$35	-	945

San Francisco - 5 men (2 days):

Air Fare - 5 @ \$173.28	-	867
Taxi	-	25
Per diem - 10 man-days @ \$35	-	350

Sub-Total \$ 4,518

Reproductions

250

Sub-Total \$ 4,768 \$ 4,768

Outside Special Consultant

Acoustical

80 man-hours @ \$22.51 \$ 1,801

Typing - 16 @ \$11.02 176

\$ 1,977

Coodination & Profit @ 10% 198

\$ 2,175 \$ 2,175

TOTAL FEE \$ 59,988

3. Comparison of DMJM-PR and Bureau of the Mint Estimates:

a. Tabular comparison

<u>Categories</u>	<u>DMJM-PR</u>		<u>MINT</u>		<u>Amount Reduction</u>
	<u>Man-Hours</u>	<u>Amount</u>	<u>Man-Hours</u>	<u>Amount</u>	
Project Direction & Management	400	\$ 13,666	400	\$ 13,666	-
Arch. & Support	700	13,967	700	13,967	-
Engineering - Building	200	3,548	120	2,129	1,419
Engineering - Mech & Elec	-	4,400	160	3,080	1,320
Production Process	1,080	21,368	1,000	20,203	1,165
TOTAL BASIC FEE	2,380*	\$56,949	2,380	\$53,045	\$ 3,904
* Mech & Elec not listed by DMJM-PR					

Non-Design Costs

Travel	\$ 4,518	\$ 4,518	-
Reproductions	250	250	-
Telephone & Postage	250	-	250
Sub-Total	\$ 5,018	\$ 4,768	\$ 250

DMJM-PRMINT

	<u>Man-Hours</u>	<u>Amount</u>	<u>Man-Hours</u>	<u>Amount</u>	<u>Amount Reduction</u>
<u>Acoustical Consultant</u>		\$ 10,450		\$ 2,175	\$ 8,275
TOTAL FEE		\$ 72,417		\$59,988	\$ 12,429

b. Discussion

The A/E's proposal for project direction and management and architectural and support for the building appears to be reasonable and has been agreed to in this evaluation. For Engineering-Building the civil engineer time has been reduced from 160 to 80 man-hours on the basis that this is adequate effort for a civil engineer for this phase of the design effort. Engineering - Mechanical and Electrical has been calculated on the basis of DMJM-PR performing the work directly, rather than through a subcontract. The subcontractor (Swanson & Rink) did not present man-hour figures in their letter to DMJM. The Mint estimate of 80 hours for HVAC, 40 hours for plumbing and 40 hours for electrical, is considered adequate for this programming phase, resulting in an estimate of \$3,080. Production process in the proposal is acceptable, except that the Process Production (Drafting) has been reduced from 320 to 240 man-hours, which provides adequate drafting services during this phase.

Nondesign costs have been reduced by eliminating \$250 for long distance telephone and postage. These are properly overhead and general expense items which would be extremely difficult to account for and charge to each project underway in the firm's offices.

The acoustical consultant costs have been reduced from \$10,450 to \$2,175. The \$2,175 allows for 80 man-hours of acoustical consulting, which should be entirely adequate to examine the problem, outline requirements and prepare a narrative description.

Labor - 760 @ \$13.21

\$10,450

(3 man @ 120)

Materials

300

Shop

250

Travel

400

\$6,626

\$ 6,626

Travel - Canada - 3 man (3 days):

Air Fare - 3 @ \$285.52

857

Taxi

30

Per diem (3 @ \$35)

105

\$1,032

\$ 1,032

Reproductions

Technical Evaluation of DMJM-PR Proposal of July 31, 1974

Task 1B(1) - Design Concept Services for Production Process

1. This task has an activity duration of 13 weeks (520 hours) in the Project Schedule dated July 1974. Some allowance of A/E time is appropriate during the four weeks Government review period.
2. Bureau of the Mint Estimate:

Categories	Man-Hours	Average Rate	Amount	Total
Project Director	40	\$ 34.30	\$ 1,372	
Project Manager	400	34.13	13,652	
Sub-Total	440		\$15,024	\$ 15,024
<u>Process Engineering & Support</u>				
Process Engineers	1,680	22.51	\$37,817	
(3 @ \$560)				
Process Designers	2,400	19.84	47,616	
Process Production	1,120	14.56	16,307	
(2 @ \$560)				
Typing	200	11.02	2,204	
Sub-Total	5,400		\$103,944	\$103,944
SUB-TOTAL			\$118,968	
Escalation Factor @ \$0.0462			5,496	
TOTAL BASIC FEE			\$124,464	

Non-Design Costs

Model

Labor - 360 @ \$15.21	\$5,476	
(3 men @ 120)		
Materials	500	
Base	250	
Cover	400	
	\$6,626	\$ 6,626

Travel: Canada - 3 men (3 days):

Air Fare - 3 @ \$285.52	857	
Taxi	30	
Per diem (9 @ \$35)	315	
	\$1,202	\$ 1,202

Reproductions

350

Value Engineering

Workshop (12 men x 40 hours @ \$20)	\$ 9,600	
Task Effort (2% of Basic)	<u>2,489</u>	
Sub-Total	\$20,267	\$ 20,267
TOTAL FEE		.\$144,731

3. Comparison of DMJM-PR and Bureau of the Mint Estimates:

a. Tabular comparison

<u>Categories</u>	<u>DMJM-PR</u>		<u>MINT</u>		<u>Amount Reduction</u>
	<u>Man-Hours</u>	<u>Amount</u>	<u>Man-Hours</u>	<u>Amount</u>	
Project Director	40	\$ 1,372	40	\$ 1,372	\$ -
Project Manager	400	13,652	400	13,652	-
Process Engineering & Support	6,600	129,257	5,400	103,944	25,313
Escalation	-	<u>6,666</u>	-	<u>5,496</u>	<u>1,170</u>
Sub-Total		\$150,947		\$124,464	\$ 26,483

Non-Design Costs

Model	\$ 8,450	\$ 6,626	\$ 1,824
Travel	3,608	1,202	2,406
Reproductions	350	350	-
Telephone & Postage	250	-	250
Value Engineering	<u>16,320</u>	<u>12,089</u>	<u>4,231</u>
Sub-Total	\$ 28,978	\$ 20,267	\$ 8,711
GRAND TOTAL	.\$179,925	\$144,731	\$ 35,194

b. Discussion

Project direction and management in the DMJM-PR proposal are considered to be reasonable and have not been changed. Process engineering and support man-hours have been calculated on the following basis:

(1) Three full-time industrial engineers during the 13-week activity period, plus one week during the Government review period.

(2) 2,400 man-hours of process design time consisting of 1,280 hours for materials handling studies, 160 hours on fuel studies and 320 hours each for mechanical, electrical and structural support effort.

(3) Two full-time draftsmen for 13 weeks, plus one week during the Government review period.

The man-hours for the "Block" model have been reduced from 480 to 360. This will allow for three men working for three weeks to

construct the model, which should be adequate. Travel has been reduced by eliminating a visit to the new French Mint. The French Mint is too small to justify the travel costs and details of production processes therein are available from a Bureau of the Mint Report. Value engineering Task Team Effort has been reduced to two percent of the basic direct effort, a figure considered to be appropriate considering expected benefits.

concept would logically perform this function. This team would of necessity have acquired a great amount of information necessary to prepare the procurement documents. There would be some minor adjustments in support personnel for the process team.

2. The prime method of estimating man-hours for this task is on the basis of the number and degree of difficulty of the procurement packages involved. This is as follows:

a. New and relatively difficult packages requiring considerable survey of equipment availability, manufacturers, and some legality:

Scrap bailer	)	3 packages	
Analytical equipment	)	at 200	600 man-hours
Dia manufacturing equipment	)	man-hours	

b. New and relatively simple packages:

Truck scale	)		
Coining bag manufacturing equipment	)	3 packages at 100	300 man-hours
Battery chargers & other minor miscellaneous items	)	man-hours	

c. Review and modify existing Mint Procurement specs - minor effort in survey of availability:

Blanking presses	)		
Annual & class lines	)		
Upset mills	)		
Coining presses	)	9 packages	
Count & bag machines	)	at 100	900 man-hours
Forklifts	)	man-hours	
Vibratory burnishers	)		
Automatic proof coin packaging lines	)		
Minor miscellaneous	)		

d. The total of 1,500 man-hours for this task covers all functions involved, including specifications drafting, estimating, typing and the minor drafting services that would be required.

Technical Evaluation of DMJM-PR Proposal of July 31, 1974

Task 1D - Production Process Procurement Documents

1. This task has an activity duration period of six weeks (240 hours). The team that had been working previously on the production process concept would logically perform this function. This team would of necessity have acquired a great amount of information necessary to prepare the procurement documents. There would be some minor adjustments in support personnel for the process team.
2. The prime method of estimating man-hours for this task is on the basis of the number and degree of difficulty of the procurement packages involved. This is as follows:

- a. New and relatively difficult packages requiring considerable survey of equipment availability, manufacturers, and some ingenuity:

Scrap bailer	)	3 packages	
Analytical equipment	)	at 200	600 man-hours
Die manufacturing equipment)		man-hours	

- b. New and relatively simple packages:

Truck scale	)		
Coining bag manufacturing equipment	)	3 packages at 100	300 man-hours
Battery chargers & other minor miscellaneous items)		man-hours	

- c. Review and modify existing Mint Procurement specs - minor effort in survey of availability:

Blanking presses	)		
Anneal & clean lines	)		
Upset mills	)		
Coining presses	)	9 packages	
Count & bag machines	)	at 100	900 man-hours
Forklifts	)	man-hours	
Vibratory burnishers	)		
Automatic proof coin packaging lines	)		
Minor miscellaneous	)		

- d. The total of 1,800 man-hours for this task covers all functions involved, including specifications drafting, estimating, typing and the minor drafting services that would be required.

3. As an alternative, the following Mint estimate follows the A/E's proposed format and is based on using the essential personnel of the production process team with necessary support personnel for the six weeks period.

<u>Categories</u>	<u>Man-Hours</u>	<u>Average Rate</u>	<u>Amount</u>	<u>Total</u>
Project Director	20	\$ 34.30	\$ 686	
Project Manager	120	34.13	4,096	
Sub-Total	140		\$ 4,782	\$ 4,782
<u>Process Engineering</u>				
Process Engineers	720	22.51	\$16,207	
(3 Ind. @ \$240 each)				
Process Production	120	14.56	1,747	
(Drafting)				
Mechanical Engineer	240	20.58	4,939	
Electrical Engineer	240	18.61	4,466	
Specifications	240	19.82	4,757	
Estimating	120	23.28	2,794	
Typing	100	11.02	1,102	
Sub-Total	1,780		\$36,012	\$36,012
Sub-Total				\$40,794
Escalation @ \$0.06				2,448
TOTAL BASIC FEE				\$43,242

Non-Design Costs

Travel to survey equipment sources:

5 trips @ 2 men - 3 days:

Fare - 10 @ \$200	\$ 2,000
Taxi - 5 @ \$20	100
Per diem - 30 man days @ \$35	1,050
	\$ 3,150

Reproductions

320

Value Engineering (2% of Basic)

865

Acoustical Consultant @ 5% of Basic

2,162

TOTAL FEE \$49,739

4. Comparison of DMJM-PR and Bureau of the Mint Estimates: *illings, which is covered in the building design.*

a. Tabular comparison

<u>Categories</u>	<u>DMJM-PR</u>		<u>MINT</u>		<u>Amount Reduction</u>
	<u>Man-Hours</u>	<u>Amount</u>	<u>Man-Hours</u>	<u>Amount</u>	
Project Director	20	\$ 686	20	\$ 686	\$ -
Project Manager	240	8,191	120	4,096	4,095
Process Engineering	2,620	49,576	1,780	36,012	13,564
Escalation	-	3,507	-	2,448	1,059
TOTAL BASIC FEE . . .	2,880	\$61,960	1,920	\$43,242	\$18,718
Non-Design Costs		20,170		4,335	15,835
Acoustical Consultant		7,700		2,162	5,538
TOTAL FEE		\$89,830		\$49,739	\$40,091

b. Discussion

The project manager's time for this task has been reduced from 240 to 120 hours. Concurrently with this task, there would be on-going effort to prepare the building design concepts, and the project manager would be involved in both tasks. If the A/E's intent is to have a project manager for the preparation of procurement documents only, this duty could be assigned to the lead industrial engineer, whose full time has been allowed in the fee calculations.

Process engineer time has been reduced from 800 to 720 hours, providing for three full-time industrial engineers during the activity duration. This, if anything, is more than adequate considering the technical support included and the knowledge acquired by these personnel during previous phases of the design effort. Drafting time (process production) has been reduced to 120 man-hours, as only a few sketches will be required for the procurement packages, not Working Drawings as listed in paragraph 1D(3) of the proposed A/E contract. Estimating has been reduced to 120 hours which should provide adequate time to prepare estimates for each of the approximate 15 packages.

Travel has been reduced to five trips for two men at three days each. Trips are needed only for some of the proposed procurements, as most of the detailed information can be obtained by mail and telephone and by personal contact with manufacturers' representatives in Denver and Los Angeles. Value Engineering is calculated at two percent of the direct effort, which should be adequate, particularly considering that the specifications to be prepared are nearly all of the performance type. Finally, acoustical consulting at five percent of the basic effort is reasonable for preparation of procurement documents. The real effort in acoustical consulting will be with respect to sound

absorption enclosures, partitions, floors, walls and ceilings, which is covered in the building design.

Task 1D.2. Approximate Percent Working Drawings

The task was planned for a duration of 26 weeks (1,040 hours) in the building design during July 1974 and in a concurrent activity with the design of final working drawings for the building. The task consisted of essentially two parts: (1) drawings for the installation of the systems of production process equipment, and (2) drawings for the installation of materials handling equipment, with appropriate coordination for the efficient movement of goods within, between shops, between the shops and the various process equipment.

The estimate for this task was based on the basis of the number of drawings required and the number of drawings per drawing. The estimated number of drawings is:

1. Materials handling drawings

Approximately 25 drawings required as follows:

Index - 1; Working plans - 2; general and close lines - 10; upper mill - 1; cone press - 1; cover and bag - 3; analytical equipment - 2; die manufacturing equipment - 3; engine - 2; track engine - 2; bag manufacturing equipment - 2; battery chargers - 2; vibratory feeders - 2; packaging lines - 2; miscellaneous - 4.

2. Materials handling, automation drawings

Approximately 35 drawings required as follows:

Basic Process Layout

1 - General
1 - Electrical
1 - Mechanical
1 - Materials Flow
2 - Miscellaneous

Automated Lines

1 - General
2 - Controls
3 - Structural Supports
5 - Assembly Details
1 - Electrical
1 - Mechanical
3 - Miscellaneous

Materials Handling

1 - General
1 - Cranes & Gantry

3. Survey of the Mint Estimate:

Estimatee	Drawings	Average Rate	Amount	Total
Project Director	120	\$ 34.10	\$ 4,092	
Project Manager	120	36.13	17,346	

Technical Evaluation of DMJM-PR Proposal of July 31, 1974

Task 1E(1) Production Process Working Drawings

1. This task is planned for a duration of 26 weeks (1,040 hours) in the project schedule dated July 1974 and is a concurrent activity with preparation of final working drawings for the building. The task consists of essentially two parts: (1) drawings for the installation of specific items of production process equipment, and (2) drawings for the installation of materials handling equipment, with appropriate controls for the efficient movement of scrap return, coinage strip, blanks and coins between the various process stations.
2. The estimate for this task has been calculated on the basis of the number of drawings required and the man-hours required per drawing. The estimated number of drawings is:

a. Specific equipment drawings

Approximately 50 drawings required as follows:

Baler - 4; blanking press - 4; anneal and clean lines - 10; upset mills - 3; coin press - 4; count and bag - 3; analytical equipment - 3; die manufacturing equipment - 3; scales - 2; truck scales - 2; bag manufacturing equipment - 2; battery chargers - 2; vibratory burnishers - 2; packaging lines - 2; miscellaneous - 4.

b. Materials handling, automation drawings

Approximately 35 drawings required as follows:

Basic Process Layout

1 - General
1 - Electrical
1 - Mechanical
1 - Materials Flow
1 - Miscellaneous

Automated Lines

1 - General
2 - Controls
3 - Structural Supports
5 - Assembly Details
5 - Electrical
5 - Mechanical
3 - Miscellaneous

Materials Handling

1 - General
5 - Cranes & Gantries

3. Bureau of the Mint Estimate:

<u>Categories</u>	<u>Man-Hours</u>	<u>Average Rate</u>	<u>Amount</u>	<u>Total</u>
Project Director	120	\$ 34.30	\$ 4,116	
Project Manager	520	34.13	17,748	
Sub-Total	640		\$21,864	\$ 21,864

50 drawings @ 125 man-hours per drawing = 6,250 man-hours.

<u>Categories</u>	<u>Man-Hours</u>	<u>Average Rate</u>	<u>Amount</u>	<u>Total</u>
1/3 Process Engineers	2,083	\$ 22.51	\$ 46,888	
1/3 Other Engineers	2,083	19.59	40,806	
1/3 Drafting	<u>2,084</u>	14.56	<u>30,343</u>	
Sub-Total	6,250		\$118,037	\$ 118,037

35 drawings @ 125 man-hours = 4,375 man-hours.

1/3 Process Engineers	1,458	22.51	\$ 32,820	
1/3 Other Engineers	1,458	19.59	28,562	
1/3 Drafting	<u>1,459</u>	14.56	<u>21,243</u>	
Sub-Total	4,375		\$ 82,625	\$ 82,625

Support

Specifications	500	19.82	9,910	
Estimating	300	23.28	6,984	
Typing & Reproduction	<u>1,040</u>	11.02	<u>11,461</u>	
Sub-Total	1,840		\$ 28,355	\$ 28,355

Sub-Total \$ 250,881
Escalation @ \$0.124 31,109
TOTAL BASIC FEE \$ 281,990

Non-Design Costs

Travel to materials handling equipment sources

5 trips @ 2 men - 3 days:

Fare and taxi - 10 @ \$200 \$ 2,000
Per diem - 30 man-days @ \$35 1,050

Reproductions

Value Engineering @ 2% of Basic
Acoustical Consulting @ 3% of Basic
Sub-Total

\$ 3,050
1,500
5,640
8,460
\$ 18,650
\$ 18,650
\$ 300,640

TOTAL FEE \$ 300,640

4. Comparison of DMJM-PR and Bureau of the Mint Estimates:

a. Tabular comparison

<u>Categories</u>	<u>DMJM</u>		<u>MINT</u>		<u>Amount</u>
	<u>Man-Hours</u>	<u>Amount</u>	<u>Man-Hours</u>	<u>Amount</u>	<u>Reduction</u>
Project Director	120	\$ 4,116	120	\$ 4,116	\$ -
Project Manager	1,040	35,495	520	17,748	17,747
Process Engineering	22,200	398,424	12,465	229,017	169,407
Escalation	-	54,316	-	31,109	23,207
TOTAL BASIC FEE	23,360	\$492,351	13,105	\$281,990	\$210,361

Other Costs

Travel	\$ 9,150	\$ 3,050	\$ 6,100
Reproductions	1,620	1,500	120
Telephone & Postage	2,500	-	2,500
Value Engineering	13,600	5,640	7,960
Acoustical Consulting	-	8,460	(8,460)
Sub-Total	\$ 26,870	\$ 18,650	\$ 8,220

GRAND TOTAL	\$519,221	\$300,640	\$218,581
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b. Discussion

The project manager's time has been reduced from 1,040 to 520 man-hours. Building working drawings will be in preparation concurrently with process working drawings and logically the project manager's effort would be evenly divided between the two activities.

Process engineering has been calculated on a work-requirement basis, rather than a mere listing of man-hours as the A/E did in his proposal. The Mint calculations result in 3,541 man-hours of process engineer (or process design) time, 3,541 man-hours for other engineers and 3,543 man-hours for drafting. These man-hours would allow for a team consisting of 3+ process engineers, 3+ other engineers (1 mechanical, 1 electrical and 1 structural) and 3+ draftsmen working full time during the 26 weeks activity period. This team would be entirely adequate to complete the work required, probably in something like 15 weeks, rather than the 26 allowed. The A/E is grossly overestimating the degree of difficulty of Task 1E(1). The details of installation of the equipment items involved are quite routine and nearly all of the required information to finalize installation drawings will be available from equipment manufacturers detailed submittals. Tying the process stations together with an economical and reliable materials handling system is the only real engineering of consequence required of the A/E in this design phase. Estimating and typing have been reduced slightly.

Travel has been reduced from 30 to 10-man trips. The only travel necessary during this period would be to obtain detailed information regarding materials handling items. Five two-man trips should suffice. Value engineering has been reduced to two percent of the basic costs, and an allowance for acoustical consulting has been added. Acoustical studies and treatments of materials handling systems appear to be warranted.

Rhea

August 13, 1974

8PC

Project No. N-CO-72-600 - New Denver Mint
Project Estimate

MEMO TO FILE

In response to the revised design criteria and current construction cost escalation figures, John Adams of the Central Office Estimates Branch, reported the following on August 13, 1974.

We cannot build 452,000 sq. ft. (gross area) and stay within the \$24,000,000 ECC, as provided in the Memorandum of Agreement. However, we can get the 400,000 gross square feet originally proposed.

Current estimate is:

400,000 sq. ft. @ \$58.79/sq. ft. =	\$23,516,000
Site development cost	<u>1,000,000</u>
	\$24,516,000
Escalation to April 1976	<u>3,441,000</u>
	\$27,957,000
Use current construction cost =	\$24,000,000
Escalation	<u>4,000,000</u>
	\$28,000,000

The deferred rollers, slither and bell annealers should be able to save us 32,000 sq. ft.

DAVID L. GESS
Project Director
New Denver Mint

cc:
File
8P
cm-r
GEH

8PC:DLGess:lr

Rhea

August 13, 1974

TECHNICAL EVALUATION OF A-E's DESIGN PROPOSAL

1. Estimate and evaluation of mechanical and electrical engineering costs.

A. Total building and site work	\$ 24,000,000
Administrative and support building (150,000 sq. ft. @ 61.00/sq. ft.)	9,100,000
Production facilities building (302,000 sq. ft. @ \$47.00/sq. ft.)	13,500,000
Site work	1,400,000
B. Administrative and support building:	
Mechanical (PHVAC) Construction cost *27% of \$9,100,000 =	2,457,000 ✓
Electrical construction cost *12.9% of 9,100,000 =	1,173,900 ✓
C. Production facilities construction cost	
Mechanical (PHVAC) Construction cost *17.3% of \$13,500,000 =	2,335,500 ✓
Electrical construction cost *14.1% of 13,500,000 =	1,903,500 ✓

*Mechanical and electrical construction costs from "Building Construction Cost Data, 1974, Means."

2. For the building construction:

A. The mechanical engineering design fees are:

1. Administrative and support building **4.2% of \$2,457,000 =	103,194 ✓
2. Production facilities **3.6% of \$2,335,500 =	84,078 ✓
3. Total mechanical engineering construction design fee	\$ 187,272 ✓

B. The electrical engineering design fees are:

1. Administrative and support building **4.2% of \$1,173,900 =	49,304 ✓
2. Production facilities **3.6% of \$1,903,500 =	68,526 ✓
3. Total electrical engineering construction design fee	\$ 117,830 ✓

3. Production equipment cost and installation

\$ 14,000,000

A. Electrical construction costs

**8.9% of 14,000,000 =

1,246,000 ✓

B. Mechanical construction costs

**12% of 14,000,000 =

1,680,000 ✓
1,666,667

**Percentage from "Manual of Professional Practice
Interprofessional Service Mechanical and Electrical
Engineering" Consulting Engineering Council of
Colorado.

4. Engineering fees for production equipment and
installation:

A. Mechanical engineering fee

**3.6% of \$1,666,667 =

1,680,667

60,480
60,504 -
60,000

B. Electrical engineering fee

**3.6% of \$1,246,000 =

44,856 ✓

5. Summary of mechanical and electrical engineering
fees per "Fee and Payment" schedule:

A. Item 1A, program services for production process
and building and site facility.

Mechanical engineering 40 hours

1,600

Electrical engineering 40 hours

1,600

Sub Total

3,080

\$ 3,200

B. Item 1B(2), design concept services for
building and site facilities. (diagramatic)

Mechanical engineering

22,473

Electrical engineering

14,665

Sub Total

\$ 37,138

C. Item 1C, design services for building and
site facilities (tentative)

Mechanical engineering

33,709

Electrical Engineering

21,997

Sub Total

\$ 55,706

PMJM. PR
Without
evaluation

\$ 4,400

35,200

63,800

Additional requirement of the contract for the following are in addition to the basic design costs listed above for this phase:

Concept activities already included above

Life cycle analysis	\$ 6,400
Building code requirements	800
Environmental impact	800
Anti-pollution study	2,000
Economic analysis	1,600
Sub Total	\$ 11,600

D. Item 1D, production process procurement documents

9,405

Mechanical engineering	8,400
Electrical engineering	4,480
Sub Total	\$ 12,880

E. Item 1E(1), production process installation documents and drawings

94,056

Mechanical engineering	60,000
Electrical engineering	44,856
Sub Total	\$ 104,856

F. Item 1E(2), working drawings, building and site facilities

259,600

Mechanical engineering	131,090
Electrical engineering	85,545
Sub Total	\$ 216,635

G. Total Mechanical and Electrical Engineering Fees

442,015

Totals from P. Analysis

Bldg - Mech	187,272
Bldg - Elec	117,830
Process - Mech	60,458
- Elec	44,856

\$ 410,462

CARL A. SWENSON
Mechanical Engineer

RALPH W. GENOFF
Electrical Engineer

170 not L5 ree
A/E (w/o Escalation)

Programming	4,400
Bldg Concept	35,200
Bldg Testimony	63,800
Proc Documents	9,405
Proc Inst Documents	94,056
Bldg Working Drawn	259,600
Total	466,461

*+ Process Eng
Time which was
+ spent in
Estimation*

Design percentages include all aspects of work, including estimates & spec preparation.

ACOUSTICAL CONSULTANT ESTIMATE

August 13, 1974

Estimated Acoustical Consultant Hourly Rate

	Base Rate	20% Fringe	100% Overhead	Sub Total	10% Fee	Average Rate
Chief Consultant	15.00	3.00	15.00	33.00	3.30	\$36.30
Staff Consultant	10.00	2.00	10.00	22.00	2.20	<u>\$24.20</u>
36.30 + 24.20 ÷ 2 = Use average rate of						\$30.25
Typing-clerical	6.00	1.20	6.00	13.20	1.32	\$14.50

August 13, 1974

Schedule I, Programming Services

Proposal fee \$9,500

Estimator fee:

Study criteria 40 hours

On-site investigation 40 hours

Research 60 hours

Report 30 hours

170 hours @ \$30.25 =

\$5,143.00

Typing

40 hours @ \$14.50 =

580.00

Travel

Air fare 1 man 2 trips @ \$175 = \$ 350

Taxi 2 trips @ \$ 20 = 40

Per diem 7 man days @ \$ 35 = 245

\$1,635 =

\$1,635.00

Printing

\$ 50

Long distance telephone

100

\$150 =

\$ 150.00

Est. Total

\$7,508.00

Schedule II Equipment Concepts

Proposed Fee: None

Estimated fee:

Review exterior layout	40 hours		
Review equipment layout	80 hours		
Research	40 hours		
Report	40 hours		
	<u>200 hours</u>	@ \$30.25 =	\$6,050
Typing and clerical	40 hours	@ \$14.50 =	580

Travel

Air fare 1 man 1 trip @	\$175	=	175	
Taxi 1 trip @	\$ 20	=	20	
Per Diem 4 days @	\$ 35	=	<u>140</u>	
			\$335	=
				\$ 335

Printing	\$100		
Long distance telephone	<u>75</u>		
	\$175	=	\$ 175

Total			<u>\$7,140</u>
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Schedule III Building Concepts

Proposed Fee \$42,500

Estimated fee:

Review site plan	30 hours
Review mechanical-electrical equipment and layout	100 hours
Review architectural layout	80 hours
Review materials	80 hours
Research	100 hours
Report	80 hours

<u>470</u> hours @ \$30.25 =	\$14,218
120 hours @ \$14.50 =	1,740

Typing and clerical

Travel

Air fare 2 men 2 trips @ \$175 = \$ 700

Taxi 4 trips @ 20 = 80

Per diem 4 trips @ 3 days

@ 35 = 420

\$1,200 =

\$ 1,200

Printing

\$100

Long distance telephone

150

\$250 =

\$ 250

Total

\$17,408

Schedule IV, Building Tentatives

Proposed fee \$8,500

Review for compliance with program	40 hours		
Review mechanical-electrical equipment layouts	40 hours		
Analysis critical areas	40 hours		
Review architectural layout	40 hours		
Prepare contract documents	120 hours		
Report	<u>40</u> hours		
	320 hours @ \$30.25 =		\$ 9,680
Typing and clerical	60 hours @ \$14.50 =		870
Travel			
Air fare 1 man 1 trip @	\$175		
Taxi 1 trip @	20		
Per diem 3 days @ 35 =	<u>105</u>		
	\$300 =		\$ 300
Printing	\$150		
Long distance telephone	<u>100</u>		
	\$250 =		\$ 250
	Total		\$11,100

Schedule V Equipment Procurement Documents

Proposed Fee \$7,000

Review Equipment Procurement Documents (partial submittals)	140 hours		
Revise equipment procurement documents	50		
Report	<u>30</u>		
	220 hours @ \$30.25 =		\$6,655
Typing and clerical	40 hours @ \$14.50 =		580
Travel			
None			
Printing	\$ 50		
Long distance telephone	<u>150</u>		
	\$100 =		\$ 100
	Total		\$7,335

Schedule VI Equipment Working Drawings

Proposed Fee None

Review Equipment Working Drawings	20 hours		
Research changes	20		
Report	<u>16</u>		
	55 hours @ \$30.25	=	\$1,664

Typing and clerical	20 hours @ \$14.50	=	290
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Travel
None

Printing	\$ 50		
Long distance telephone	<u>50</u>		
	\$100	=	\$ 100

Total			<u><u>\$2,054</u></u>
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Schedule VII Building Working Drawings

Proposed Fee \$6,500

Review building Working Drawings	100 hours		
(partial submittals)			
Research changes	40		
Report	<u>30</u>		
	170 hours @ \$30.25 =		\$5,143

Typing and clerical

20 hours @ \$14.50 = 290

Travel

Air Fare 1 trip @ \$175 = \$175

Taxi 1 trip @ 20 = 20

Per diem 3 days @ 35 = 105

\$300 =

\$ 300

\$5,733

Schedule VIII Post Construction Services (Shop Drawings)

Proposed Fee \$6,000

Review shop drawing	100 hours	
Witness factory tests	30	
Report	<u>20</u>	
	150 hours @ \$30.25 =	\$4,538

Typing and clerical	30 hours @ \$14.50 =	435
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Travel		
Air fare 2 trips @ \$175 =	\$350	
Taxi 2 trips @ 20 =	40	
Per diem 4 days @ 35 =	<u>140</u>	
	\$530 =	\$ 530

Total	\$5,503
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Summary of Acoustical Consultant Fees

	Proposed by A-E	GSA Estimate	Difference
Schedule I Program Services	\$ 9,500	\$ 7,508	
Schedule II Equipment Concepts	None	7,140	
Schedule III Building Concepts	42,500	17,408	
Schedule IV Building Tentatives	8,500	11,100	
Schedule V Equipment Procurement Documents	7,000	7,335	
Schedule VI Equipment Working Drawings	None	2,054	
Schedule VII Building Working Drawings	6,500	5,733	
Schedule VIII Building Post- Construction	6,000	5,503	
Schedule IX Equipment Post- Construction	None	None	
Schedule X Construction Services	\$75/hr minimum 8 hrs		
	\$80,000	\$63,781	\$16,219
A-E Fee 10%	<u>8,000</u>		or 20% high
	\$88,000		

A-E's VE requirements for the New Denver Mint

1. Special VE type services are required.
2. A-E's VE fee may be deleted from the statutory 6% limitation except directly related production work. Obtain breakdown of A-E VE fee.
3. A-E cannot participate in incentive sharing.
4. VE services required to be furnished by A-E and estimated VE costs:

a. Program Stage: Review and comment on design criteria, no extra fee justified as Program Service is primarily Value Engineering.

b. Design Concept Stage: Examine all design criteria, submit a report. This service is a continuation of Program VE services above, there should be very little added cost for VE.

Building: 7 men @ 20 hours = 140 hours @ \$20 = 2,800

Production Equipment: 2 men @ 40 hours = 80 hours
@ \$25 = 2,000

c. Design Tentative Stage: A-E's staff shall attend 40-hour VE Work Shop hosted by CM. Estimated attendance by A-E - 14 people. Also provide data and assist CM in preparing VE Workshop Workbook.

Building: 10 men X 60 = 600 hours @ \$20 = \$12,000
Data, Workbook, etc. 1,000
\$13,000

Production Equipment (Procurement documents):
4 men X 60 = 240 hours @ \$25 = \$ 6,000

d. Working Drawing Stage: A-E is to utilize those men trained in VE Workshop (estimated 14 men) as a team to review design effort.

Building: 10 men X 100 hours = 1,000 hours @ \$20 = 20,000

Production Equipment: 4 men X 60 hours = 240 hours @
\$25 = 6,000

2.

e. Post Construction Stage: A-E is to review and comment on VECP's submitted by the contractor, (after initial screening by the Government.) If additional design is required by acceptance of VECP, A-E's fee is subject to change by Clause 3.

Building: 10 men X 25 hours = 250 hours @ \$20 = \$5,000

Production Equipment: 4 men X 20 hours = 80 hours
@ \$25 = 2,000

f. Standard Services: A-E is to review and comment on VECP's submitted by the Government, CM and A-E employees. If additional design is required, A-E fee is subject to change by Clause 3.

Building: 10 men X 20 = 200 hours @ \$20 = \$4,000

Production Equipment: 4 men X 10 hours = 40 hours
@ \$25 = 1,000
\$5,000

Add to Post Construction Fee

Estimated A-E Travel

1A Program, Building and Production Equipment

	<u>Trips</u>	<u>Man-days</u>
Travel 5 men Philadelphia 3 days	5	15
Initial meeting of A-E staff 4 men, 3 days	4	12
Visit metal plants, 4 men, 3 days	4	12
Midpoint review 2 men, 3 days	2	6
Final coordination 2 men, 3 days	2	6
	<u>17</u>	<u>51</u>

Fare 17 trips @ 200 =

3,400

Per Diem = 51 man days @ \$35 =

1,785

\$5,185

Say \$5,200

1B(2) Building Design Concept Stage

	<u>Trips</u>	<u>Man-days</u>
Management, 2 men	6	18
Architecture, 2 men	2	6
Mechanical, 2 men	2	6
Electrical, 2 men	2	6
Spec. Problem, 4 men	4	12
	<u>16</u>	<u>48</u>

Fare 16 trips @ \$200 =

3,200

Per Diem 48 man days @ \$35

1,680

\$4,880

Say \$4900

1C Building Tentative Design

	<u>Trips</u>	<u>Man-days</u>
Management, 2 men X 4	8	24
Architecture, 2 men X 1	2	6
Mechanical, 2 men X 2	4	12
Electrical, 1 man X 2	2	6
Special Problem, 4 men X 2	8	24
	<u>24</u>	<u>72</u>

Fare 24 trips @ \$200 =

4,800

Per Diem 72 @ \$35 =

2,520

\$7,320

Say \$7,300

1E Building Working Drawings

	<u>Trips</u>	<u>Man-days</u>
Management, 2 men X 10	20	60
Architecture, 2 men X 1	2	6
Mechanical, 2 men X 2	4	12
Electrical, 2 men X 2	4	12
Special Problem, 4 men X 3	12	36
	<u>42</u>	<u>126</u>

2.

Fare 42 trips @ \$200 =	8,400
Per Diem 126 days @ \$35 =	<u>4,410</u>
	\$12,810

Say \$12,800

1F Building Post Construction

	<u>Trips</u>	<u>Man-days</u>
Management, 2 men X 4	8	24
Architecture, Mechanical, Electrical, 3 men X 1	3	9
Special Problem, 4 men X 1	<u>4</u>	<u>12</u>
	15	45

Fare 15 trips @ \$200 =	3,000
Per Diem 45 mandays @ \$35 =	<u>1,575</u>
	\$4,575

Say \$4,600

1A Program Process Equipment

None, included in Programing Service for the building and facilities.

1B Design Concept - Process Equipment

	<u>Trips</u>	<u>Man-days</u>
Management (included in building)	None	None
Process Engineers, 2 men X 4	8	24
Mechanical, 2 men X 4	8	24
Electrical, 2 men X 4	<u>8</u>	<u>24</u>
	24	72

Fare 24 trips @ \$200 =	4,800
Per Diem 72 mandays @ \$35	<u>2,520</u>
	\$7,320

Say \$7,300

1D Process Equipment - Procurement Document

	<u>Trips</u>	<u>Man-days</u>
Management (included in Building)	None	None
Process Engineers, 2 X 2	4	12
Mechanical, 2 men X 1	2	6
Electrical, 2 men X 1	<u>2</u>	<u>6</u>
	8	24

Fare 8 trips @ \$200 =	1,600
Per Diem 24 mandays @ \$35 =	<u>840</u>
	\$2,440

Say \$2,500

3.

1E Process Equipment Installation Drawings

	<u>Trips</u>	<u>Man-days</u>
Management (included in building)	None	None
Process Engineers, 2 men X 2	4	12
Mechanical, 2 men X 2	4	12
Electrical, 2 men X 2	4	12
	<u>12</u>	<u>36</u>

Fare 12 trips @ \$200 =	2,400	
Per Diem 36 mandays @ \$35 =	<u>1,260</u>	
	\$3,660	

Say \$3,700

1F Process Equipment - Post Construction

	<u>Trips</u>	<u>Man-days</u>
Management (included in building)	None	None

No travel is anticipated, however, some could be required.
Therefore estimate: \$2,000

SCHEDULE "A"

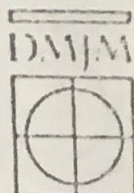
October 23, 1973

DMJM-PHILLIPS-REISTER

1A - PROGRAMMING SERVICES FOR BUILDING & SITE FACILITIES

<u>CATEGORIES</u>	<u>MAN HOURS</u>	<u>*AVERAGE RATE</u>	<u>AMOUNT</u>
<u>ARCHITECTURAL & SUPPORT:</u>			
Project Director	40	33.11	\$ 1,324
Project Manager	160	28.38	4,540
Project Architect	160	23.65	3,784
Arch. Design	160	20.10	3,216
Arch. Production	240 160	15.01	3,602 2,400.
Interiors (Color)	-0-	13.60	-0-
Specifications	-0-	16.55	-0-
Estimating	80	18.92	1,514
Check & Coordinate	-0-	16.55	-0-
Constr. Administration	-0-	18.92	-0-
Tech. Type & Repro.	60	10.65	639
TOTAL ARCHITECTURAL	900 820		\$18,619 17,417.
<u>ENGINEERING:</u>			
Civil	40	17.73	\$ 710
Structural	40	17.73	710
Mech. - HVAC	100	17.73	1,773
Mech. - Plumbing	40	16.55	662
Electrical	80	17.73	1,420
TOTAL ENGINEERING	300 150		\$ 5,275 2,600.
TOTAL BASIC	1,200 970		\$ 23,894 20,074.
<u>REIMBURSABLES:</u>			
Travel: 5 men - 4 trips - 3 days each trip			
Fare = 20 men at \$200.00			= \$4,000.00
Per Diem = 60 man days (\$35.00)			= \$2,100.00
			\$ 6,100 5200
Reproductions - Preliminary Analysis & Report:			250 ?
Long Distance Telephone, Postage, etc.			250 ?
SCHEDULE "A" TOTAL			\$ 30,494 25,774.

*Rates shown are based on current rates effective November 1, 1973.
A Cost-of-Living increase is not required for this Phase.

SCHEDULE "B"

October 23, 1973

DMJM-PHILLIPS-REISTER

1B(2) - DESIGN CONCEPT SERVICES FOR BUILDING & SITE FACILITIES

<u>CATEGORIES</u>	<u>MAN HOURS</u>	<u>*AVERAGE RATE</u>	<u>AMOUNT</u>
<u>ARCHITECTURAL & SUPPORT:</u>			
Project Director	50	33.11	\$ 1,656
Project Manager	387	28.38	10,983
Project Architect	440	23.65	10,406
Arch. Design	1,650 1200	20.10	33,165 24,120
Arch. Production	2,130 1600	15.01	31,977 24,016
Interiors (Color)	-0-	13.60	-0-
Specifications	-0-	16.55	-0-
Estimating	200	18.92	3,784
Check & Coordinate	220	16.55	3,641
Constr. Administration	-0-	18.92	-0-
Tech. Type & Repro.	<u>360</u>	<u>10.65</u>	<u>3,834</u>
TOTAL ARCHITECTURAL	5,437 4457		\$ 99,440 82,440
<u>ENGINEERING:</u>			
Civil	310	17.73	\$ 5,496
Structural	2,100 1600	17.73	37,233 28,368
Mech. - HVAC	1,040	17.73	18,439
Mech. - Plumbing	560	16.55	9,268
Electrical	<u>1,040</u>	<u>17.73</u>	<u>18,439</u>
TOTAL ENGINEERING	5,050 4550		\$ 88,875 80,010
TOTAL BASIC	10,487 9007		\$188,315 162,450
<u>REIMBURSABLES:</u>			(-) 25% 121,838
Travel: 5 men - 3 trips - 3 days each trip			
Fare = 15 men at \$200.00		= \$3,000	
Per Diem = 45 man days at \$35.00		= <u>1,575</u>	\$ 4,575 4700
Reproductions: Sepias, Reports, etc.			350 ?
Long Distance Telephone, Postage, etc.			500 ?
			<u>\$193,740</u>
Value Engineering = \$85,875.00 X 12% =			\$ <u>10,305</u> 2800
SCHEDULE "B" TOTAL			\$204,045 130,388

*Rates shown are based on current rates effective November 1, 1973.

A Cost-of-Living increase is not required for this Phase.



SCHEDULE "C"

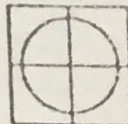
October 23, 1973

DMJM-PHILLIPS-REISTER

1C - TENTATIVE DESIGN SERVICES FOR BUILDING & SITE FACILITIES

<u>CATEGORIES</u>	<u>MAN HOURS</u>	<u>*AVERAGE RATE</u>	<u>AMOUNT</u>
<u>ARCHITECTURAL & SUPPORT:</u>			
Project Director	70	33.11	\$ 2,318
Project Manager	410	28.38	11,636
Project Architect	600	23.65	14,190
Arch. Design	3,600 3000	20.10	72,360 60,300
Arch. Production	1,800 1200	15.01	27,018 18,012
Interiors (Color)	60	13.60	816
Specifications	80	16.55	1,324
Estimating	300 150	18.92	5,676 2,838
Check & Coordinate	330	16.55	5,462
Constr. Administration	-0-	18.92	-0-
Tech. Type & Repro.	560	10.65	5,964
TOTAL ARCHITECTURAL	7,810 6460		\$146,764 122,860
<u>ENGINEERING:</u>			
Civil	450	17.73	\$ 7,979
Structural	3,200 3000	17.73	56,736 53,190
Mech. - HVAC	1,560 1200	17.73	27,659 21,276
Mech. - Plumbing	840 600	16.55	13,902 9,930
Electrical	1,560 1200	17.73	27,659 21,276
TOTAL ENGINEERING	7,610 6450		\$133,935 113,657
TOTAL BASIC	15,420 12910		\$280,699 236,511
<u>REIMBURSABLES:</u>			
Model			\$ 15,000 ?
Reproduction: Sepias, Reports, Color Prints, etc.			2,500 ?
Long Distance Telephone, Postage, etc.			1,000 ?
Travel \$7300. ?			\$299,199
Value Engineering = \$85,875 X 18%			-15,458 13,000
SCHEDULE "C" TOTAL			\$314,657 208,833

*Rates shown are based on current rates effective November 1, 1973.
A Cost-of-Living increase is not required for this Phase.



DMJM-PHILLIPS-REISTER

1E - WORKING DRAWING SERVICES FOR BUILDING & SITE FACILITIES

<u>CATEGORIES</u>	<u>MAN HOURS</u>	<u>*AVERAGE RATE</u>	<u>AMOUNT</u>	
<u>ARCHITECTURAL & SUPPORT:</u>				
Project Director	220	33.11	\$ 7,284	
Project Manager	1,240	28.38	35,191	
Project Architect	1,800 1600	23.65	42,570	39,650
Arch. Design	2,200	20.10	44,220	
Arch. Production	17,250 12,000	15.01	258,923	180,120
Interiors (Color)	1,000 500	13.60	13,600	6,800
Specifications	2,720 1600	16.55	45,016	26,480
Estimating	1,130 1,000	18.92	21,380	18,920
Check & Coordinate	1,000	16.55	16,550	
Constr. Administration	-0-	18.92	-0-	
Tech. Type & Repro.	1,800 1600	10.65	19,170	17,040
TOTAL ARCHITECTURAL	30,360 22,960		\$503,904	372,255
<u>ENGINEERING:</u>				
Civil	1,520 1,000	17.73	\$ 26,950	17,730
Structural	10,120 6,000	17.73	179,428	106,380
Mech. - HVAC	5,060 4,500	17.73	89,714	79,785
Mech. - Plumbing	2,700 2,000	16.55	44,685	33,100
Electrical	5,060 4,500	17.73	89,714	79,785
TOTAL ENGINEERING	24,460 1,900		\$430,491	316,780
TOTAL BASIC	54,820 40,960		\$934,395	709,035
<u>REIMBURSABLES:</u>			(-)	25%
Travel: 5 men - 10 trips - 3 days each trip				531,776
Fare = 50 men at \$200.00 = \$10,000.00				
Per Diem = 150 man days at \$35.00 = \$5,250.00			\$ 15,250	12,800
Reproductions: Sepias, Specifications, Schedules, etc.			10,000	?
Long Distance Telephone, Postage, etc.			2,500	?
Value Engineering = \$85,875.00 X 58% =			\$962,145	
SCHEDULE "D" SUB-TOTAL			49,868	20,000
			\$1,011,953	577,066
*Rates shown are based on current rates effective November 1, 1973.				
An average Cost-of-Living increase of 2.75% will be applied to				
this Phase in the amount of				
			\$ 27,829	15,864
SCHEDULE "D" TOTAL			\$1,039,782	592,930

SCHEDULE "E"

October 23, 1973

DMJM-PHILLIPS-REISTER

1F - POST CONSTRUCTION CONTRACT AWARD SERVICES FOR BUILDING & SITE FACILITIES

<u>CATEGORIES</u>	<u>MAN HOURS</u>	<u>*AVERAGE RATE</u>	<u>AMOUNT</u>
<u>ARCHITECTURAL & SUPPORT:</u>			
Project Director	140	33.11	\$ 4,635
Project Manager	660	28.38	18,731
Project Architect	420	23.65	9,933
Arch. Design	240	20.10	4,824
Arch. Production	4,560	15.01	68,446
Interiors (Color)	80	13.60	1,088
Specifications	-0-	16.55	-0-
Estimating	-0-	18.92	-0-
Check & Coordinate	320	16.55	5,296
Constr. Administration	810	18.92	15,325
Tech. Type & Repro.	180	10.65	1,917
TOTAL ARCHITECTURAL	7,410		\$130,195
<u>ENGINEERING:</u>			
Civil	340	17.73	\$ 6,028
Structural	2,020	17.73	35,815
Mech. - HVAC	1,060	17.73	18,794
Mech. - Plumbing	570	16.55	9,434
Electrical	1,060	17.73	18,794
TOTAL ENGINEERING	5,050		88,865
TOTAL BASIC	12,460		\$219,060

REIMBURSABLES:

Travel: 5 men - 3 trips - 3 days each trip

Fare = 15 men at \$200.00

= \$3,300.00

Per Diem = 45 man days at \$35.00

= 1,575.00

Reproduction: Sepias, Prints, Xerox, etc.

Long Distance Telephone, Postage, etc.

\$ 4,575 4600
1,000 ?
1,500 ?
\$266,135

Value Engineering = \$85,875.00 X 12% =

\$ 10,305 9000

SCHEDULE "E" SUB-TOTAL \$276,440

*Rates shown are based on current rates effective November 1, 1973.

A Cost-of-Living increase of 5.5% will be applied to this Phase
in the amount of

\$ 15,204

SCHEDULE "E" TOTAL \$291,644



f

10/01/73

By: F. W. Rhea

A/E FEE CALCULATIONS

Based on Scope of Services

A. Programming Services - Allowed Time - 4 Weeks

(1)	1	Project Coordinator			
	1	Architect			
	1	Civil			
	1	Mechanical			
	1	Electrical			
	1	Industrial (Systems)			
	6	Men for 1 Month @ \$2,000	=	\$ 12,000	
	1	Draftsman @ \$1,000	=	1,000	
				\$ 13,000	\$ 13,000
(2)		Sepia Preliminary Planning Schedule	200		200
(3)		Preliminary Estimate			
	2	Estimators/1 Month @ \$1,800	3,600		
		Typing Reproduction	200		
					3,800
					\$ 17,000

Alternate - Separate Bid Item

Direct Costs

17,000

U-10 & C.A @ 95%

16,150

Travel Allowance

5 men - 1 trip - 3 days

5 @ 2w = 1,000

2,000

Pending
150 350521
1,521 my 2,000

35,150

10/01/73

A/E FEE CALCULATIONSB. Design Concept(1) Production Process - Allowed Time - 16 Weeks

(a)	1 Principal @ \$2,500 Month)	Basic	\$ 2,500	
	3 Industrials @ \$2,000 Month)		<u>6,000</u>	
			\$ 8,500	
	\$8,500 x 4 Months	=	<u>34,000</u>	\$ 34,000
(b)	Materials Handling Studies			
	2 Engineers @ \$1,800 x 4 Months			14,400
(c)	Three-Dimensional Model			5,000
(d)	Fuel Studies			
	2 Engineers @ \$1,800 x 2 Months			7,200
(e)	Update Estimate			
	2 Estimators/1 Month @ \$1,800			3,600
(f)	Draftsman @ \$1,000 x 4 Months			4,000
				<u>\$ 68,200</u>
		Say		\$ 68,000

3 Industrials x 4 Mo. = 2112
 2 Mater Handling x 4 Mo. = 1408
 2 Fuel x 2 months = 704
 2 Estimators x 1 Mo. = 352
 4576

Draft 68,000
 O. & D. C. A @ 45% 61,100
 Travel 4,900
 \$137,000

10/01/73

A/E FEE CALCULATIONS

176 hrs/month

B. Design Concept (Cont'd.)(2) Buildings and Site Development - Allowed Time - 4 Weeks
After Approval of B(1) Work Underway for 20 WeeksMan-Hours

- (a) Site Studies and Analysis - topo, soils, rock, existing improvements
 1 Civil
 2 Geologists
 3 Men for 2 Months @ \$1,800 \$ 10,800
- (b) Building Layouts
 Process system envelope - plan, elevations, structural, cranes, roof, interior divisions, noise attenuation, pollution measurement and control, office space/support area
 1 Architect/Team Leader
 1 Architect
 1 Structural
 1 Mechanical
 1 Electrical
 5 Men for 4 Months @ \$2,000 40,000
 2 Pollution Experts
 1 Sound Attenuation
 1 Security Consultant
 4 Men for 2 Months @ \$2,000 16,000
- (c) Update Estimate
 2 Estimators/1 Month @ \$1,800 3,600
- (d) Drafting
 3 Draftsmen @ \$1,000 x 4 Months 12,000
- (e) Project Coordinator @ \$2,500 x 4 Months 10,000
- (f) Presentation to Advisory Panel
 2 Days/7 Men = $\frac{1}{2}$ Month @ \$2,000 = \$1,000
 Special Drawings/Pictures/Display - \$1,000 2,000
- (g) Value Engineering
 1 Engineer @ \$1,800 x 2 Months 3,600
- \$ 98,000

1,056

3,520

1,408

352

2112

704

88

9240

A/E Proposal

5,437

5,050

10,487

10/10/73

A/E FEE CALCULATIONSC. Tentative Design Services - Building/Site Only - Allowed Time -
12 Weeks After Approval of Concept

1762-Hours

(1) Building/site drawings		
Foundations - 3 Engineers)		17,000
Estimators - 2)		
Architects - 2)		68,000
Structurals - 2)		88,000
Mechanicals - 2)	26 x \$1,800	
Electricals - 2)	x 3	\$ 140,400
Pollution - 2)		
Sound - 2)		
Security - 2)		
Draftsmen - 3)		
HVAC - 2)		
VE - 2)		
	<u>26</u>	

352

Specs - 2 @ 1 Month x \$1,800	3,600
Model	8,000
<u>528</u>	
Project Coordinator @ \$2,500 x 3	7,500
	\$ 159,500
	Say \$ 160,000

14,608

A/K Original 7,810
 7,610
15,420

10/01/73

A/E FEE CALCULATIONS

Basic Contract Summary

Direct Costs

A. Programming Services	\$ 17,000
B. (1) Production Concept	68,000
(2) Buildings/Site Concept	98,000
C. Buildings/Site Tentatives	160,000
Sub-Total	\$ 343,000

Overhead and General Expense @ 70%
(high side) Say 240,000

Sub-Total \$ 583,000

Profit @ 10% 58,000

\$ 641,000

Travel Allowance - 5% of Direct, Say 20,000

\$ 661,000

10/01/73

A/E FEE CALCULATIONSD. (2) Survey Production Equipment Potential and Prepare Procurement Specifications

Relatively "New" Procurement Packages

- | | | | |
|---|---|----------------------------------|---|
| 1 - Intermediate Mill
Finishing Mill | X | 6 - Roll Grinders | X |
| 2 - Slitter/Trimmer | X | 7 - Die Manufacturing Equipment | |
| 3 - Scrap Baler | | 8 - Metal Shears | X |
| 4 - Strip Annealers | X | 9 - Truck Scales | |
| 5 - Analytical Equipment | | 10 - Bag Manufacturing Equipment | |

Modify Existing Mint Specs

- 1 - Anneal and Clean Lines
- 2 - Blanking Presses
- 3 - Upset Mills
- 4 - Coining Presses
- 5 - Count and Bag Machines
- 6 - Forklifts
- 7 - Scales

*Proof Coining
54" belt feeding forward
Vibrator bins
Auto packaging line
Die polishing equipment*

10/01/73

A/E FEE CALCULATIONSD. ⁽²⁾ Survey Production Equipment Potential and Prepare Procurement Specifications (Cont'd.)

"New" Packages - Per Package

10 Packages x 200 man-hours each (avg.) x \$10.00/hr. \$ 20,000

Modify Existing Specs

7 Packages x 100 man-hours x \$10.00/hr. 7,000

Team Leader @ 200 man-hours x \$15.00/hr. 3,000

Sub-Total \$ 30,000

Overhead @ 70%

21,000

\$ 51,000

Profit @ 10%

5,000

\$ 56,000

30 Drawings @ 100 Man-hours per @ \$10.00/hr. \$ 30,000

Specifications and Estimate @ 20% 6,000

Approval and Test Schedule @ 10% 3,000

Value Engineering @ 5% - Say 2,000

Project Coordinator - \$2,500 x 3 Months 7,500

\$ 48,500

10/01/73

A/E FEE CALCULATIONSD(3)
E.Prepare Working Drawings

- (1) Completion of Process Design - Based on Number of Drawings Required

Basic Process Layout Drawings

- | | | |
|------------------|----------------------|-----------|
| 1 Plan | | \$ 35,000 |
| 1 Electrical | | \$ 85,000 |
| 1 Mechanical | ----- Say 5 Drawings | \$ 8,000 |
| 1 Materials Flow | | \$ 93,000 |
| Miscellaneous | | 7,000 |

Materials Handling

- | | | |
|-----------------------|--|--|
| 1 Plan | | |
| 1 Cranes and Gantries | | |

Detailed of Automated Lines

- | | | |
|-----------------------|-----------------------|--|
| 1 General | | |
| 1 Controls | | |
| 3 Structural Supports | ----- Say 25 Drawings | |
| 5 Assembly Details | | |
| 5 Electrical | | |
| Miscellaneous | | |

30 Drawings @ 100 Man-hours per @ \$10.00/hr.	\$ 30,000
Specifications and Estimate @ 20%	6,000
Approval and Tests Schedule @ 10%	3,000
Value Engineering @ 5% - Say	2,000
Project Coordinator - \$2,500 x 3 Months	7,500
	<u>\$ 48,500</u>

10/01/73

A/E FEE CALCULATIONS

17(3)

E. (1) Final Process Design (Cont'd.)

Direct Cost - \$48,500 Say \$ 50,000

Overhead and General Expense @ 70% 35,000

\$ 85,000

Profit @ 10% 8,000

\$ 93,000

Travel Allowance 7,000

Total \$ 100,000

Roll Annealers 10

Blanking Presses 10

1 General

1 Structural

1 Electrical

3 Mechanical

3 Sound Attenuation

10 - Anneal and Clean Lines 10

3 - Eject Mills 3

4 - Coil Presses 10

3 - Coart and Bag 3

3 - Analytical Equipment 3

3 - Die Manufacturing 3

Metal Shears 3

2 - Scales 2

2 - Truck Scale 1

2 - Bag Manufacturing 2

Roll Grinders 4

Miscellaneous @ 10% 10

Drawings 10

2 - Other Charge

2 - Laboratory Commission

10/01/73

E. (1) Working Drawings - Equipment Installation Drawings
Based on Number of Detailed Drawings

Intermediate Mill			
1	General		
1	Foundations/Structural		
3	Auxiliaries	----- Say 15 Drawings	
3	Electrical		
3	Mechanical		
1	Controls		
Finish Mill		15	
Slitter/Trimmer		12	
4	- Baler (No Auxiliaries)	10	116,200 - 4
	Bell Annealers	10	202,200 10
4	- Blanking Presses	10	28,200 10
	1 General		3
	1 Structural		10
	1 Electrical		3
	3 Mechanical		3
	3 Sound Attenuation		3
10	- Anneal and Clean Lines	10	2
3	Upset Mills	3	3
4	- Coin Presses	10	2
3	- Count and Bag	3	
3	- Analytical Equipment	3	
3	- Die Manufacturing	3	
	Metal Shears	2	
2	- Scales	2	
2	- Truck Scale	1	
2	Bag Manufacturing	2	
	Roll Grinders	4	
		115	
	Miscellaneous @ 10%	10	
	Drawings	125	
2	Battery Charger		
2	- Vibratory Breaker		
2	Package Iner		
	Miscellaneous @ 10%		

10/01/73

A/E FEE CALCULATIONS

E. (1) <u>Installation Drawings</u> (Cont'd.)		
125 Drawings @ 100 Man-hours per x \$10.00		\$ 125,000
Specifications and Estimate @ 20%	160,000	25,000
Value Engineering @ 5%	\$ 258,000	6,000
Project Coordinator \$2,500 x 4 Months		10,000
Direct Cost		\$ 166,000
Overhead and General Expense @ 70%	387,000	116,200
	271,000	\$ 282,200
Profit @ 10%	\$ 658,000	28,220
	66,000	\$ 310,420
	\$ 724,000	
Travel Allowance	20,000	
	\$ 744,000	

10/01/73

A/E FEE CALCULATIONSE. (2) Working Drawings Services - Building/Site

Concept Estimate	\$ 98,000
------------------	-----------

Tentative Estimate	160,000
--------------------	---------

	\$ 258,000
--	------------

Work Accomplished thru Tentatives is Approximately 40%
of Total, so -

\$ 258,000 x 60/40	=	\$ 387,000
--------------------	---	------------

Overhead @ 70%	271,000
----------------	---------

Travel Allowance	\$ 658,000
------------------	------------

Profit @ 10%	66,000
--------------	--------

	\$ 724,000
--	------------

Travel Allowance	20,000
------------------	--------

	\$ 744,000
--	------------

Production Process

Gross Estimate (\$17,000,000 x 32)	\$ 544,000
------------------------------------	------------

From Worksheets:

Programming Services	5,000
----------------------	-------

Concept	68,000
---------	--------

Procurement Specs	30,000
-------------------	--------

Working Drawings	50,000
------------------	--------

Equipment Installation Drawings	166,000
---------------------------------	---------

Overhead @ 70%	\$ 319,000
----------------	------------

Profit @ 10%	\$ 342,000
--------------	------------

Travel Allowance	\$ 194,000
------------------	------------

	\$ 610,000
--	------------

10/01/73

A/E FEE CALCULATIONSCheck Back Against Standard PercentagesBuilding/Site

\$28,000,000 (E.C.C.) @ 6% = \$ 1,680,000

From Worksheets Herein:

Programming Services (17,000 x 60%)	\$ 12,000
Concept	98,000
Tentatives	160,000
Working Drawings	387,000
	<u>\$ 657,000</u>

Overhead @ 70%	460,000
	<u>\$ 1,117,000</u>

Travel Allowance	33,000
	<u>\$ 1,150,000</u>

Okay and closer to proper fee than gross estimate (6% of E.C.C.).

Another way - use percentages of current estimated construction costs.

Site \$2,000,000 @ 4%	= \$ 80,000
Building \$21,000,000 @ 5%	1,050,000
	<u>\$1,130,000</u>

Production Process

Gross Estimate (\$17,000,000 x 3%) \$ 510,000

From Worksheets:

Programming Services	5,000
Concept	68,000
Procurement Specs	30,000
Working Drawings	50,000
Equipment Installation Drawings	166,000
	<u>\$ 319,000</u>

Overhead @ 70%	223,000
	<u>\$ 542,000</u>

Profit @ 10%	54,000
	<u>\$ 596,000</u>

Travel Allowance	14,000
	<u>\$ 610,000</u>

\$ 610,000 Okay

214.5
1.87 x 10 = 700, 000

December 20, 1973

Project No. 72-124
New Denver Mint

Rhea

Technical Evaluation of A-E Design Proposal

The following is a technical evaluation of the A-E design proposal furnished by DMJM-Phillips-Reister dated October 23, 1973. The following data is a summary of the input provided by GSA design architects, engineers and information furnished by the Department of Treasury.

Gross Area

Based on design criteria furnished by the Government, the Architect made a preliminary review and estimated that 550,000 square feet may be required for this project. However, he felt he could accomplish the mission with approximately 500,000 square feet. We have reviewed the area requirements with Mr. Frank Rhea of Treasury and have determined that our target quantity for this project should be 452,000 gross square feet in lieu of the 400,000 square feet initially stated in the project description. This 452,000 square feet figure was arrived at by clarification of the coin storage requirements, better utilization of administration and support facilities and additional consideration was given to the sound attenuation requirements of the process area. See the attached Pages 3, 4, 5 and 6 (Attachment "A") which have been corrected to reflect the current space requirements. ✓

Construction Costs

In arriving at the estimated total construction costs for the building and facilities of \$36,400,000 the A-E made some assumptions based on incorrect information. Basically the Philadelphia Mint construction costs were considerably less than that reflected in the A-E's proposal. We have obtained the actual construction costs of the Philadelphia Mint and by using proper location factors and escalation costs from the Engineering News Record and BOECKH indices, it has been determined that the current costs of a Mint facility at Denver, Colorado would be about \$50 per square foot. Using the 452,000 square feet at \$50 a square foot plus the special site work costs as reflected in the A-E's proposal on Page 3 would result in an estimated current contract award amount for this project (less production process equipment) of \$24 million. This reduction from an estimated \$36,400,000 by the A-E to \$24 million in itself should result in a very sizable reduction in the A-E's design fee as reflected below. ✓

Production Process Equipment Cost

See the Attachment "B" sheet entitled "Estimated Production Process Equipment cost Furnished by Department of Treasury" for a breakdown of the estimated process equipment cost. The project authorization provides \$17 million for process equipment broken down as follows:

2.

Process Equipment Procurement Cost	\$11,390,000
Installation Cost	<u>2,610,000</u>
	\$14,000,000

17
It is estimated process equipment cost will escalate \$3 million bringing the total up to \$7 million prior to completion of this project. However, the A-E design fee negotiations should be based on current process equipment costs of \$14 million rather than the escalated figure. This procedure of estimating design costs on current construction costs rather than anticipated escalated amounts should also apply to the design fee for the building and facilities.

Time Schedule

The design A-E has suggested increasing the time provided for various services under this proposed contract. Further review of this matter indicates that some extension of various phases has merit. It is felt the following changes in the duration of the various services as summarized on Page 5 of the A-E's proposal should be acceptable to both the Government and the design A-E. See Attachment "C".

Proposed Fee

Building and Facilities

The design man hours proposed by the A-E have been reviewed in detail and reduced where felt appropriate. This was accomplished by first reducing any specific category of work which had a disproportionately large amount of man hours proposed. In addition to this reduction of proposed man hours, it was felt appropriate to take an overall reduction in the total man hours of each phase of the design work based on a \$24 million construction cost rather than the \$36,400,000 cost estimated by the A-E. The \$24 million project, as currently visualized, represents a 34% reduction from that proposed by the A-E. Due to the complexity of this unique project it is not considered appropriate to reduce the A-E's fee by the full 34%. However, it is felt that a 25% reduction is appropriate. See the attached Pages 6 and 7 of the A-E design proposal (Attachment "D") for the suggested revised fees based on the above assumption.

Process Equipment

The proposed design fee of production process equipment of \$877,302 by the A-E represents 5.16% of the \$17 million process equipment costs. This figure is considered high. See Mr. Frank Rhea's estimate of the designed fee for process equipment, Attachment "E". The summary of the estimated process equipment design fee is also shown on the above noted Pages 6 and 7 of Attachment "D".

Travel

The A-E has included in his proposal estimated travel costs for various items, amounts which total \$73,625. The A-E did not include any travel costs on his Schedule C which summarized tentative design services for building and site facilities which was apparently an oversight on his part. We have reviewed and estimated the travel costs for this project and have come up with a total of about \$50,300 for the entire project which is approximately 68% of that proposed by the design A-E. This matter will be subject to a detailed discussion at the time of negotiation.

Value Engineering

The A-E has proposed a total of \$113,376 fee for Value Engineering throughout the length of the project including the building facilities and process equipment. GSA's estimate indicates the estimated fee for the Value Engineering required under this contract should be approximately \$61,800. This matter will be reviewed in detail during the negotiation.

Models

The A-E has proposed a fee of \$15,000 for the building and site model and \$10,000 to the process equipment block model. The contract requirements are not too explicit on the type and quality of model required. Therefore, estimating an appropriate fee is rather difficult. It is felt the best solution is to review this matter in detail with the design A-E to determine what type and quality of models he proposes to furnish and mutually agree at an appropriate price and document specific requirements for these models as a part of overall negotiations.

Miscellaneous

The A-E in his proposal has included various amounts for reproduction costs of drawings, reports, etc. which appears to be an overhead item rather than subject to specific listing in this proposal. He has also included various amounts for long distance telephone and postage costs which appears to be an overhead item. The auditors have been requested to verify if these two items should be more appropriately included in the overhead mark up permitted under this project.

Post Contract Services

The post contract services required under this contract fall into three basic categories. One is shop drawings, the second is operation and maintenance manuals for the building and facilities and the third is the operation and maintenance manuals for the production process equipment. The A-E has lumped all of his work into a single summary which makes it most difficult or impossible to analyze. Therefore, the A-E will be requested to provide a breakdown of this work prior to the formal negotiations.

Construction Supervision Services

Construction services consist of primarily two phases of work. One providing consultants at a reimbursable rate as agreed to in the contract. There should be no difficulty reaching an agreement on the maximum estimated amount of man hours and appropriate fee. The second portion consists of the services of the principal of the firm on a monthly basis. The fixed fee of \$1,000 per month appears to be excessive. It appears a fee in the range of \$250-\$300 would be more appropriate and will be negotiated accordingly.

Payments

The A-E has requested that payments be made on a monthly basis rather than on the percentage basis proposed in the contract. It is agreed that the payments as proposed in the draft contract, which has only a very limited breakdown, are not a reasonable proposal for a project of this magnitude. However, rather than agreeing to monthly payment, it will be proposed during negotiation that payments be made on a percentage basis based on a more detailed breakdown as shown on Pages 13-18 and carry the revised December 6, 1973 date, (Attachment "F"). It is felt this payment arrangement would be much more equitable to the A-E and be reasonably easy for the Government to manage.

The above comments are a general review of Government estimates made to date and the preliminary proposals submitted by design A-E. These comments and figures are subject to continued review and final negotiation of the above noted design contract. It is felt this information together with the audit provided by Defense Contract Audit Agency will be most beneficial in the successful negotiation of this professional services contract. Based on the above, we should be able to negotiate a professional services contract with a design fee well under the statutory 6% limitation. However, the special considerations experienced in this project such as environmental control, OSHA requirements and energy studies bring to light relatively new areas of consideration which are subject to much speculation as to the amount of design work required. These three factors are expected to play a major role in the final negotiated design figure for this project. The A-E design fee for production process equipment is expected to be about 4 to 4.5% of the current equipment procurement and equipment installation costs.

DENVER MINT - COINAGE FACILITYAREA REQUIREMENTS

Shown on Drawings (Mint):

First Floor (860)(215)	185,000 S.F.	
Balcony (778)(32)	25,000 S.F.	
Public (Est.) (1,091)(10)	10,000 S.F.	7450
Coin Stor. (2 extra floors)	<u>23,000</u> S.F.	
	243,000 S.F.	240,450
		<u>243,000</u> S.F.

STORAGE & BALER

Dwg. 7/11/72 based on prod. of 10.5 billion coins/yr-3 shifts

Criteria 7/1/73 incr. to prod. of 15.7 billion coins/yr-3 shifts

70,000# Stor. Bins - 112 shown - 158 indicated - 800 S.F.Baler - 1,000 S.F.*Coin Storage - increase 7.7 to 15.7 billion -

<u>8000</u>	<u>49,900</u> S.F.
<u>9,000 S.F.</u>	<u>51,700</u> S.F.

GENERAL:

Personnel Support facilities - Not adequate

General Storage - Not adequate

Sound Control - Partition baffles - Add

Increase in circulation space

Custodial

<u>1000</u>	
<u>12,000</u> S.F.	

*Coin Storage - 203'x54' = 11,500 S.F./fl. (3) = 34,500 S.F. Total Exist
for 3 layers = 7.7 for 30 da

Add one layer = 1.25(7.7) = 9.625 billion max. cap. in 34,506 S.F.

$\frac{9.625}{15.7} = \frac{34,506}{X} = 56,285$ S.F. req'd for 15.7 for 30 day.

for 45 da. = 56,285(1.50) = 84,428

Less original 34,506

Additional Space Req'd 49,922

Denver Mint - Coinage Facility

SUPPORT (Additional)

Mechanical Equipment Rooms

7,000 S.F. OK

Heat Exchange Rooms

Electric - Substations - Switchgear
for Industrial Equipment

~~25,000~~ S.F. 6,000

~~15,000~~ S.F. 1,000

Process Control Equipment, Electrical

Utilidors - 12' Wide 12'hx215'l gx3 = 7740 S.F.

12'hx400'l gx2 = 9600 S.F.

12'hx130'l gx5 = 7800 S.F.

- 8' Wide 12'hx160'l gx6 = 7680 S.F.

32,820 S.F. (1/2) say ~~63,500~~ S.F. 16,400
30,400 S.F.

RECAPITULATION

Original

243,000 240,500

Storage & Baler

51,700 9,000

General

12,000 1,000

Support

63,500 30,400

Coin Facility Total

→ 280,900 S.F.

~~369,200~~ S.F.

DENVER MINT - ADMINISTRATION - MAINTENANCE BUILDING

Area Requirements

Shown on Drawings (Mint)

Basement	122(392) =	47,824
First Floor	122(422) =	51,484
	15(92) =	+1,380
Second Floor	122(392) =	47,824
	15(92) =	1,380
Third Floor	62(212) =	13,144
	25(92) =	2,300
Fourth Floor	62(212) =	13,144
	25(92) =	2,300
Penthouse	27(92) =	2,484
		<u>183,264</u>

183,264

Delete Strip Production Support

Coolant Res.	5,036 S.F.
Process Water	6,300 S.F.
Manuf. Support Equip. Strip	3,600 S.F.
Circulation	<u>1,900 S.F.</u>
	16,836 S.F.

- 16,836 S.F.

.36(31,616)

RECAPITULATION

Original	183,264 S.F.
Decreased for Strip	
Production Support	<u>- 16,836 S.F.</u>

Administration & Maintenance
Facility Total

~~166,428 S.F.~~ 150,000 S.F.

This figure was reduced to 150,000 S.F. because offices too large, too many toilets etc.

DENVER MINT - PROOF COIN FACILITY

Area Requirements

Shown on Drawings	222(82) =	18,204 S.F.
Para. 4 of Criteria		
Lunch Room Assume	2,800 S.F. =	2,800 S.F.
Total		21,000 S.F. <i>OK</i>

Recapitulation

From Drawing

Coinage	243,000 S.F.
Admin.-Maint.	182,260 S.F.
Proof-Coin	<u>18,200 S.F.</u>
	443,460 S.F.

Revised - For omissions and Increased and Deleted requirements

Coinage	369,200 S.F.	<i>280,900</i>
Admin.-Maint.	166,400 S.F.	<i>150,000</i>
Proof-Coin	<u>21,000 S.F.</u>	
	556,600 S.F.	<u><i>451,900</i></u>

Use 452,000 S.F. Total

Estimated Production Process Equipment Costs Furnished by Department of Treasury

3 big mills	5,000,000
Scrap boiler	300,000
8 blanking presses	650,000
3 annealing and cleaning lines	390,000
5 up-set mills	50,000
40 coin presses	2,800,000
Counting and bagging machines	200,000
Analytical equipment	200,000
Roll grinder	500,000
Dye manufacture equipment	300,000
Misc. shears, scales, etc.	<u>1,000,000</u>
	\$11,390,000
Installation	<u>2,610,000</u>
Total	\$14,000,000
Escalation	<u>3,000,000</u>
	\$17,000,000



DMJM-PHILIPS-REISTER

General Services Administration

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October 23, 1973

- A. PROGRAMMING SERVICES as required by Clause 1A
 ⁶~~8~~ weeks
 after Notice to Proceed.
- B. DESIGN CONCEPT SERVICES as required by Clause 1B (1)
 16 weeks
 after Programming Services approval.
- C. DESIGN CONCEPT SERVICES as required by Clause 1B (2)
 ⁸~~10~~ weeks
 with Design Concept Services required by Clause 1B (1),
 completed after Clause 1B (1) is approved.
- D. TENTATIVE DESIGN SERVICES as required by Clause 1C
 15 weeks
 after Design Concept Services required by Clause 1B (2)
 is approved.
- E. PRODUCTION PROCESS PROCUREMENT DOCUMENTS required by
 Clause 1D ⁸~~4~~ weeks
 after the option under Clause 1D (1) is exercised.
- F. WORKING DRAWINGS SERVICES as required by Clause 1E (1)
 26 weeks
 after the option under Clause 1E (1) is exercised.
- G. WORKING DRAWING SERVICES as required by Clause 1E (2)
 ⁴⁰~~45~~ weeks
 after the option under Clause 1E (2) is exercised.

Under this Schedule of Submissions, Item M. Major Milestone Dates for This Project would necessarily be affected and would be properly correlated during the programming services of the contract.



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General Services Administration

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October 23, 1973

PROPOSED FEE

We would propose to accomplish the Architecture, Engineering and Production Process design for the fixed fees as follows:

Building and Site Facilities	-----	<u>\$1,880,622.</u>
Production Process	-----	<u>\$ 877,302.</u>
T o t a l	-----	<u>\$2,757,924.</u>

This fixed fee does not include the Construction Supervision Service listed under Item 1.G. (Item B (9) below) as this item is based partly on hourly rate payments.

A. Hourly Rates. The hourly rates schedule is attached hereto as Exhibit "2A".

B. Proposed Fee by Categories. The following is an itemized breakdown of the fixed fee quoted above:

(1) Programming Services - Clause 1.A.

Building and Site Facilities ----- \$30,494. *25,774.*

(See Schedule "A")

Product Process (See Schedule "F") ----- 38,761. *41,056*

Total Programming Services ----- \$ 69,255. *66,850*

(2) Design Concept Services - Clause 1.B (1)

Product Process (See Schedule "G") ----- \$176,744 *118,685*

(3) Design Concept Services - Clause 1.B (2)

Building and Site Facilities (See Schedule "B")----- \$204,045 *130,388*



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October 23, 1973

(4) Tentative Design Services - Clause 1.C

Building and Site Facilities (See Schedule "C") --- \$314,657 *208,883*

(5) Procurement Documents - Clause 1.D

Product Process (See Schedule "H") ----- \$ 59,954 *48,829*

(6) Working Drawing Services - Clause 1.E (1)

Product Process (See Schedule "I") ----- \$516,592 *377,963*

(7) Working Drawing Services - Clause 1.E (2)

Building and Site Facilities (See Schedule "D") - \$1,039,782 *592,930*

(8) Post Construction Services - Clause 1.F

Building and Site Facilities

(See Schedule "E") ----- \$291,644

Product Process (See Schedule "J") ----- 85,251

Total ----- \$376,895

(9) Construction Supervision Services - Clause 1.G

Maximum Fixed Fee ----- \$124,800

(a) Principal services under Clause 1.G (1) estimated
at 3 days per month for a maximum of 24 months:

Fee per month ----- \$ 916.00

Miscellaneous expenses ----- 84.00

Fixed Fee/Month ----- \$1,000.00

250. to 300.

(b) Total Fee may be reduced proportionately by months
if construction is completed prior to the 24 month
period and no services are required for the
remaining period.

1A - PROGRAMMING SERVICES FOR BUILDING AND PROCESS EQUIPMENT

Time 6 Weeks (240 Hours)

<u>CATEGORIES</u>	<u>MAN-HOURS</u>	<u>RATE</u>	<u>AMOUNT</u>
Project Director	60	33.11	\$ 1,987
Project Manager	240	28.38	6,811
Project Architect	160	23.65	3,784
Civil Engineer	40	17.73	710
Structural Engineer	40	17.73	710
Mechanical Engineer - HVAC	100	17.73	1,773
Mech. Engineer - Plumbing	40	16.55	662
Electrical	80	17.73	1,420
Architectural Design	160	20.10	3,216
Process Engineer (2)	480	25.00	12,000
Estimator	80	18.92	1,514
Drafting	360	15.01	5,404
Typing & Reproduction	100	10.65	<u>1,065</u>
			\$ 41,056

REIMBURSABLES (#)

Travel: 5 men - 3 trips - 3 days each

Fare = 15 men @ \$200.00 = \$ 3,000.00

Per Diem = 45 man-days @ \$35.00 = 1,575.00* ~~4,575~~ None

\$ 45,631

* Included in 1A (Travel costs for Bldg etc)

1B (1) - DESIGN CONCEPT - PRODUCTION PROCESS

Time - 16 Weeks (640 Hours)

<u>CATEGORIES</u>	<u>MAN-HOURS</u>	<u>RATE</u>	<u>AMOUNT</u>
Project Director	40	33.11	\$ 1,324
Project Manager	260	28.38	7,379
Process Engineers (3 Ind.)	1,920	25.00	48,000
Process Designers			
2-Mat'l Handling	1,280		
1-Fuel Studies	- 160		
1-Mechanical	- 320		
1-Electrical	- 320		
1-Structural	- 320		
	<u>2,400</u>	17.73	42,552
Typing & Reproduction	200	10.65	2,130
			<u>\$101,385</u>

REIMBURSABLES

Model \$ 10,000

Travel -10,675 7300
$$\begin{array}{r} -20,675 \\ \$122,060 \end{array} \quad 17300$$

Value Engineering by Engineers listed above

118,685

1D(2) - PROCUREMENT DOCUMENTS FOR PRODUCTION PROCESS

Time - 4 Weeks (160 Hours)

Estimate by DMJM - Phillips. Reister okay as is, except for Reproduction (O.H.) and Value Engineering (by principals included under Process Engineering):

Project Manager	\$ 46,329	
	<u>7,625</u>	<u>2500</u>
	\$ 53,954	48,829

125 Drawings @ 125 Man-Hours per Drawing = 15,625 Man-Hours

1/3 Process Engineers	1,250	25.00	31,250
1/3 Other Engineers	1,250	17.75	22,188
1/3 Drafting	1,250	15.84	19,800

REPRODUCTION OF DRAWINGS

125 Drawings @ 100 Man-Hours per Drawing = 12,500 Man-Hours

1/3 Process Engineers	4,167	25.00	104,175
1/3 Other Engineers	4,167	17.75	73,988
1/3 Drafting	4,167	15.84	65,940

Specifications	500	18.00	9,000
Engineering	300	18.00	5,400
Math. Typing & Review	1,000	10.00	10,000

REPRODUCTION

Drawings			20,000
----------	--	--	--------

Value Engineering @ 1/2 of Process			10,000
------------------------------------	--	--	--------

Over-all drawing Estimate - 2,775 of above			2,775
--	--	--	-------

1968			2,775
------	--	--	-------

1E(1) - EQUIPMENT INSTALLATION DRAWINGS
PLUS

1D(3) - WORKING DRAWINGS FOR PROCESS AUTOMATION, CONVEYORS, ETC.

Time - 26 Weeks (1040 Hours)
(Actual work time about 15 weeks (600 hours) :

<u>CATEGORIES</u>	<u>MAN-HOURS</u>	<u>RATE</u>	<u>AMOUNT</u>
Project Director	120	33.11	\$ 3,973
Project Manager	600	28.38	17,028

DRAWINGS FOR MATERIALS HANDLING, AUTOMATION, ETC.

30 Drawings, 125 Man-Hours per Drawing = 3,750 Man-Hours

1/3 Process Engineers	1,250	25.00	31,250
1/3 Other Engineers	1,250	17.73	22,163
1/3 Drafting	1,250	15.01	18,763

DRAWINGS FOR INSTALLATION OF EQUIPMENT

125 Drawings @ 100 Man-Hours per Drawing = 12,500 Man-Hours

1/3 Process Engineers	4,167	25.00	104,175
1/3 Other Engineers	4,167	17.73	73,881
1/3 Drafting	4,167	15.01	62,547
Specifications	500	16.55	8,275
Estimating	300	18.92	5,676
Tech. Typing & Repro.	1,000	10.65	10,650
			<u>\$358,381</u>

REIMBURSABLES

Travel	-15,250	3700
Value Engineering @ 3% of Direct	-10,740	6000
Cost-of-Living Increase - 2.75% of Direct		9,855
TOTAL		<u>\$394,226</u>

377,936

in Clauses 1 (except those covered by options) and 6. The fee shall be paid as follows and each installment or portion thereof shall be in full and final settlement for all work performed thereunder.

(1) \$ _____ when all the PROGRAMMING SERVICES required under Clause 1.A are complete and approved by the Government.

(2) \$ _____ for the DESIGN CONCEPT SERVICES required under Clause 1.B(1) as follows:

a. \$ _____ when the DESIGN CONCEPT SERVICES required under Clause 1.B(1) are 25% complete.

b. \$ _____ when the DESIGN CONCEPT SERVICES required under Clause 1.B(1) are 50% complete.

c. \$ _____ when the DESIGN CONCEPT SERVICES required under Clause 1.B(1) are 75% complete.

d. \$ _____ when the DESIGN CONCEPT SERVICES required under Clause 1.B(1) are 100% complete and approved by the Government.

(3) \$ _____ for the DESIGN CONCEPT SERVICES required under Clause 1.B(2) as follows:

a. \$ _____ when the DESIGN CONCEPT SERVICES required under Clause 1.B(2) are 25% complete.

b. \$ _____ when the DESIGN CONCEPT SERVICES required under Clause 1.B(2) are 50% complete.

c. \$ _____ when the DESIGN CONCEPT SERVICES required under Clause 1.B(2) are 75% complete.

d. \$ _____ when the DESIGN CONCEPT SERVICES required under Clause 1.B(2) are 100% complete and approved by the Government.

(4) \$ _____ for the TENTATIVE DESIGN SERVICES required under Clause 1.C as follows:

a. \$ _____ when the TENTATIVE DESIGN SERVICES required under Clause 1.C are 25% complete.

b. \$ _____ when the TENTATIVE DESIGN SERVICES required under Clause 1.C are 50% complete.

c. \$ _____ when the TENTATIVE DESIGN SERVICES required under Clause 1.C are 75% complete.

d. \$ _____ when the TENTATIVE DESIGN SERVICES required under Clause 1.C are 100% complete and approved by the Government.

(5) Prior to the final payment under this Clause 5.A, the Architect-Engineer shall furnish the Government with a release of all claims as the Architect-Engineer may except. He shall describe and state the amount of each excepted claim.

B. If the Government exercises the option provided in Clause 1.D, the Architect-Engineer will be paid an additional fixed fee of \$ _____ which shall constitute full compensation for all services and material outlined in Clause 1.D.

(1) The fee shall be paid in lump sum when all work required under Clause 1.D is complete and approved.

(2) Prior to final payment under this Clause 5.B, the Architect-Engineer shall furnish the Government with a release of all claims against the Government under this portion of this contract, other than such claims as the Architect-Engineer may except. He shall describe and state the amount of each excepted claim.

C. If the Government exercises the option provided in Clause 1.E(1), the Architect-Engineer will be paid an additional fixed fee of \$ _____ which shall constitute full compensation for all services and material outlined in Clauses 1.E(1), (3), (4), (6), (7), (9), (10) and (11). The fee shall be paid as follows and each installment or portion thereof shall be in full and final settlement for all work performed thereunder.

(1) \$ _____ for the WORKING DRAWING SERVICES required under Clause 1.E(1) as follows:

a. \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(1) are 20% complete.

b. \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(1) are 40% complete.

c. \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(1) are 60% complete.

d. \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(1) are 80% complete.

e. \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(1) are 100% complete and approved by the Government.

(2) Prior to the final payment under this Clause 5.C, the Architect-Engineer shall furnish the Government with a release of all claims against the Government under this portion of the contract, other than such claims as the Architect-Engineer may except. He shall describe and state the amount of each excepted claim.

D. If the Government exercises the option provided in Clause 1.E(2), the Architect-Engineer will be paid an additional fixed fee of \$ _____ which shall constitute full compensation for all services and material outlined in Clauses 1.E(2), (3), (4), (5), (7), (8), (9), (10) and (11). The fee shall be paid as follows and each installment or portion thereof shall be in full and final settlement for all work performed thereunder.

(1) \$ _____ for the WORKING DRAWING SERVICES required under Clause 1.E(2) as follows:

a. \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(2) are 15% complete.

b. \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(2) are 30% complete.

c. \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(2) are 45% complete.

d. \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(2) are 60% complete.

e. \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(2) are 75% complete.

f. \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(2) are 90% complete.

g. \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(2) are 100% complete and approved by the Government.

(2) Prior to the final payment under this Clause 5.D, the Architect-Engineer shall furnish the Government with a release of all claims against the Government under this portion of the contract, other than such claims as the Architect-Engineer may except. He shall describe and state the amount of each excepted claim.

E. If the Government exercises the option provided in Clause 1.F, the Architect-Engineer will be paid an additional fixed fee of \$ _____ which shall constitute full compensation for all services and material outlined in Clauses 1.F and 6. The fee shall be as follows and each installment or portion thereof shall be in full and final settlement for all work performed thereunder.

(1) \$ _____ for the POST CONSTRUCTION SERVICES required under Clause 1.F(1) as follows:

a. \$ _____ when the POST CONSTRUCTION SERVICES required under Clauses 1.F(1) a., b. and h. are complete and approved by the Government.

b. \$ _____ when the POST CONSTRUCTION SERVICES required under Clauses 1.F(1) c., d. and g. are 50% complete.

c. \$ _____ when the POST CONSTRUCTION SERVICES required under Clauses 1.F(1) c., d. and g. are 100% complete and approved by the Government.

d. \$ _____ when the POST CONSTRUCTION SERVICES required under Clause 1.F(1) e. are 50% complete.

e. \$ _____ when the POST CONSTRUCTION SERVICES required under Clause 1.F(1) e. are 100% complete and approved by the Government.

f. \$ _____ when the POST CONSTRUCTION SERVICES required under Clause 1.F(1) f. are 50% complete.

g. \$ _____ when the POST CONSTRUCTION SERVICES required under Clause 1.F(1) f. are 100% complete and approved by the Government.

(2) \$ _____ when the POST CONSTRUCTION SERVICES required under Clause 1.F(2) are complete and approved by the Government.

(3) \$ _____ when the POST CONSTRUCTION SERVICES required under Clause 1.F(3) are complete and approved by the Government.

(4) Prior to the final payment under this Clause 5.E the Architect-Engineer shall furnish the Government with a release of all claims against the Government under this portion of the contract, other than such claims as the Architect-Engineer may except. He shall describe and state the amount of each excepted claim.

(5) The Architect-Engineer shall have no duties or responsibilities in connection with any furniture or furnishings that are supplied and installed by the Government, and shall receive no compensation on account thereof.

F. If the Government exercises the option provided in Clause 1.G, the Architect-Engineer will be paid an additional fee not to exceed \$ _____ which shall constitute full compensation for all services and material outlined in Clauses 1.G and 6. The fee shall be paid as follows and each installment or portion thereof shall be in full and final settlement for all work performed thereunder.

(1) \$ _____ each month for a maximum of 24 months. Payment to be made monthly after the services outlined under Clause 1.G(1) are approved.

(2) If construction is completed in less than a 24 month period or during the 24th month, the final payment shall consist of the payment due for the month in which the construction is actually completed.

(3) If construction of the project extends beyond a 24 month period, supervision services required by Clause 1.G(1) may be extended at the option of the Government for month-to-month periods not to exceed six months, and payment therefor shall be prorated at the rate of \$ _____ per month.

(4) The Government shall pay the Architect-Engineer for services provided under Clause 1.G(2) at the hourly rate described below:

Principal:	\$ _____ /hour
Project Architect:	\$ _____ /hour
Structural Engineer:	\$ _____ /hour
Electrical Engineer:	\$ _____ /hour
Landscape Architect:	\$ _____ /hour
Civil Engineer:	\$ _____ /hour
Mechanical Engineer:	\$ _____ /hour

The total cost not to exceed \$ _____ which shall constitute full compensation for all services and material outlined under Clause 1.G(2). The fee shall be in full and final settlement for all work performed thereunder.

a. Government shall pay the Architect-Engineer, at the end of each month, the amount of the invoice after the services outlined under Clause 1.G(2) have been furnished.

(5) Prior to the final payment under this Clause 5.F the Architect-Engineer shall furnish the Government with a release of all claims against the Government under this portion of the contract, other than such claims as the Architect-Engineer may except. He shall describe and state the amount of each excepted claim.



DMJM-PHILLIPS-REISTER

ORLEY O. PHILLIPS
FLOYD M. REISTER

July 31, 1974

General Services Administration
Public Building Service
Building 41, Denver Federal Center
Denver, Colorado 80225

Re: Project No. N-CO-72-600
New Denver Mint

Gentlemen:

Reference is made to your letter of July 16, 1974 which supplemented and revised your letter of September 28, 1973. We are pleased to submit the requested revised proposal for professional services covered by your letter and the revised proposed Draft Contract dated July 16, 1974.

We have re-evaluated our proposal of October 23, 1974 in view of the July 1974 project schedule, professional service scope changes, decisions provided at our meeting of December 5, 1974 and your letter of July 16, 1974.

Buildings and Site Scope

In the proposed draft contract, the buildings are initially budgeted to a gross area of 452,000 square feet on a site of approximately thirty-five acres. We have used this directed building area and site in calculating our work for this project.

Buildings and Site Development Costs

At this time we cannot confirm the programmed building cost indicated. Current erratic increases in construction costs do not permit a valid basis for projection. The desired quality for the building, the life cycle costing, value management, environmental and safety considerations will be important factors in determining the actual final cost of the project. In determining our proposed fees for the project, we have attempted to relate to the quality that is indicated by the programmed budget.



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General Services Administration

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Production Equipment Cost

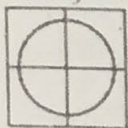
The estimated production equipment procurement contract award price was quoted as \$17 Million as of April 1976, under the project description and construction cost estimate furnished. There are so many unknown factors in the cost of this equipment such as type of equipment, amount of selected units to be used, amount of salvage, degree of automation, and other related factors that the Government's estimate of \$17 Million is used in lieu of a better estimate at this time. However, since there is no way of determining a cost estimate at this time, it is not felt that this procurement cost can be guaranteed.

Project Schedule

The project schedule dated July 1974 indicates an extreme option period IE (2) of 36 weeks after approval of the Building Tentative Design Services before commencement of Building Working Drawings. As related, this option could delay the working drawing period scheduled for the entire 36 weeks. It is requested that this option period commence on the same basis as option IE (1) for the equipment working drawings. Additionally, an early option in this period will then permit an intermediate building working drawing period to be instituted with resulting improved continuity of the programmed schedule.

Proposal

We propose to provide our services in accordance with the schedules included herein. The schedules are summarized as follows:



<u>Schedule I</u> - Programming Service for Building and Site facility and production process. The total basic fee for this service is -----	\$ 72,417
<u>Schedule II</u> - Design Concept Services for Production Process. The total basic fee for this service is -----	179,925
Schedule III - Design Concept Services for Building and Site Facilities. The total basic fee for this service is -----	239,938
<u>Schedule IV</u> - Tentative Design Service for the Building and Site. The total basic fee for this service is -----	344,443
<u>Schedule V</u> - Production Process Procurement Documents. The total basic fee for this service is -----	89,830
<u>Schedule VI</u> - Production Process Installation Documents. The total basic fee for this service based upon the schedule as furnished is -----	519,221
If the intermediate working drawing period is added and started immediately upon approval of procurement documents, a reduction of \$13,579 can be realized.	
<u>Schedule VII</u> - Working Drawing Services for Building and Site Facilities. The total basic fee for this service is -----	982,942
<u>Schedule VIII</u> - Post Construction Contract Award Services for Building and Site Facilities. The total fee for this service is -----	228,064
<u>Schedule IX</u> - Post Construction Contract Award Services for Production Process. The total fee for this service is -----	95,950
<u>Schedule X</u> - Construction Supervision Services. The fee for the principal for a 24-month period on the basis of one visit described under Clause IG (1) is -----	30,000
The maximum fee for consulting services described under Clause IG (2) is -----	152,208

Meeting w/AE Aug 19, 1974

Escalation in Basic

6,666	4.2
7,315	
11,519	
3,507	
54,316	
74,525	
<u>\$157,848</u>	

Escalation included in Bond, Bureau

5,496
2,448
31,109
<u>\$39,053</u>

157,848
39,053
<u>\$118,795 Net</u>

Bid Packages

Railroad

Grading

Site Utilities { Water
Gas
Power
Drainage

Heating Plant

Foundations

Structural Framing

Walls & Roof

Electrical

Mechanical

Interiors

Landscaping

Heating & Lighting

35 50

(17)

(25)

20

(10)

35

20



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General Services Administration

July 31, 1974
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RECAPITULATION OF SCHEDULES I THRU X

<u>Categories</u>	<u>Basic Fee</u>	<u>Non-Design Costs</u>	<u>Special Consultants</u>	<u>Total</u>
<u>Programming Services</u>	\$ 56,949	\$ 5,018	\$ 10,450	\$ 72,417
S u b t o t a l	\$ 56,949	\$ 5,018	\$ 10,450	\$ 72,417
<u>Buildings & Site</u>				
Design Concept	\$ 166,070	\$ 16,118	\$ 57,750	\$ 239,938
Tentative Design	271,181	58,412 *	14,850	344,443
Working Drawings	941,297	30,095	11,550	982,942
Post Construction	202,854	12,010	13,200	228,064
S u b t o t a l	\$1,581,402	\$ 116,635	\$ 97,350	\$1,795,387
* Includes Model cost of \$27,902.				
<u>Production Process</u>				
Design Concept	\$ 150,947	\$ 28,978 *	\$ ----	\$ 179,925
Process Procurement	61,960	20,170	7,700	89,830
Working Drawings	492,351	26,870	----	519,221
Post Construction	84,530	11,420	----	95,950
S u b t o t a l	\$ 789,788	\$ 87,438	\$ 7,700	\$ 884,926
T O T A L	<u>\$2,428,139</u>	<u>\$ 209,091</u>	<u>\$ 115,500</u>	<u>\$2,752,730</u>

* Includes Model cost of \$8,450.

Construction Supervision Services

IG (1) - Principal Services	\$ 30,000
IG (2) - On-call Technical Services	Max. 152,208
S u b t o t a l	\$ 182,208
G R A N D T O T A L	<u>\$2,934,938</u>



DMJM-PHILLIPS-REISTER

General Services Administration

July 31, 1974
Page 5

Exhibit A - Hourly Rate Schedule. Direct personnel expenses and overhead rates are provided and the cognizant Audit Agency is identified. Direct salary costs as shown are based upon July 1974 salary rates and the Schedules show the rate of appreciation at 6% per year as the work progresses. Sound forecasting techniques on cost of living increases indicate that current cost of living increases are in excess of the 6%. The Daniel, Mann, Johnson and Mendenhall policy is to provide annual cost of living increase the first of December each year in addition to normal merit raises.

Exhibit B - List of Proposed Consultants.

We appreciate the opportunity to submit this Proposal. We have attempted to re-evaluate the project, its scope and the required fees as realistically as possible. We realize that there may be differences in our evaluations and we are willing to negotiate these differences at your convenience.

Sincerely,

DMJM - PHILLIPS REISTER, INC.

By Floyd M. Reister
Floyd M. Reister
Vice President

FMR:vw

Enclosures (as noted)



Schedule " I "

July 31, 1974

DMJM-PHILLIPS-REISTER

1A - PROGRAMMING SERVICES FOR PRODUCTION PROCESS AND BUILDING & SITE FACILITY

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
Project Director	80	\$34.30	\$ 2,744	
Project Manager	320	34.13	10,922	
	400			
S u b t o t a l			\$13,666	\$ 13,666
<u>Architectural & Support - Building</u>				
Project Architect	320	\$23.98	\$ 7,674	
Arch. Design	-0-	-0-	-0-	
Arch. Production	240	15.71	3,770	
Interiors (Color)	-0-	-0-	-0-	
Specifications	-0-	-0-	-0-	
Estimating	80	23.28	1,862	
Check & Coordinate	-0-	-0-	-0-	
Tech. Type & Report	60	11.02	661	
S u b t o t a l	700		\$13,967	\$ 13,967
<u>Engineering - Building</u>				
Civil	160	17.74	\$ 2,838	
Structural	40	17.74	710	
S u b t o t a l	200		\$ 3,548	\$ 3,548
<u>Production Process</u>				
Process Engineer	640	22.51	\$14,406	
Process Production	320	14.56	4,659	
Estimating	80	23.28	1,862	
Tech. Type & Reports	40	11.02	441	
S u b t o t a l	1,080		\$21,368	21,368
				\$52,549
<u>Engineering (Sub-Contract)</u>				
Mechanical - HVAC			\$ 1,600	
Mechanical - Plumbing			1,000	
Electrical			1,400	
S u b t o t a l			\$ 4,000	
Profit @ 10%			400	
			\$ 4,400	4,400
TOTAL BASIC FEE - PROGRAMMING				\$ 56,949

(Cont'd)



Schedule " I "

July 31, 1974

DMJM-PHILLIPS-REISTER

1A - PROGRAMMING SERVICES FOR PRODUCTION PROCESS AND BUILDING & SITE FACILITY
(Cont'd)

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
<u>Non-Design Costs:</u>				
Travel: <u>Philadelphia</u> - 9 men (3 days)				
Air Fare	9 @	\$254.55	\$2,291	
Taxi		\$ 40.00	40	
Per Diem	27 man days @	\$35.00	945	
<u>San Francisco</u> - 5 men (2 days)				
Air Fare	5 @	\$173.28	867	
Taxi		\$25.00	25	
Per Diem	10 man days @	\$35.00	350	
			\$4,518	
Reproductions - Preliminary Analysis and Report			250	
Long Distance Telephone, Postage			250	
			\$5,018	\$ 5,018
<u>Outside Services (Special Consultants)</u>				
Acoustical - 1.A(4)			\$ 9,500	
S u b t o t a l			\$ 9,500	
Coordination & Profit @ 10%			950	
S u b t o t a l			\$10,450	<u>\$10,450</u>
TOTAL FEE ----- PROGRAMMING				<u>\$72,417</u>

* Rates shown are based on current rates effective July 31, 1974.
A Cost-of-Living increase is not required for this Phase.



Schedule " II "

July 31, 1974

DMJM-PHILLIPS-REISTER

IB (1) - DESIGN CONCEPT SERVICES FOR PRODUCTION PROCESS

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
Project Director	40	\$34.30	\$ 1,372	
Project Manager	<u>400</u>	34.13	<u>13,652</u>	
S u b t o t a l	440		\$15,024	\$15,024
<u>Process Engineering & Support</u>				
Process Engineer	2,560	22.51	57,626	
Process Designers	2,560	19.84	50,790	
Process Production	1,280	14.56	18,637	
Tech. Type & Reports	<u>200</u>	11.02	<u>2,204</u>	
S u b t o t a l	6,600		\$129,257	<u>\$129,257</u>
S u b t o t a l				\$144,281
* Escalation Factor @ 0.0462				<u>6,666</u>
TOTAL BASIC FEE ---- PRODUCTION PROCESS CONCEPTS				<u>\$150,947</u>

Non-Design Costs:

Model - "Block" type @ 1/4" Scale of Coining Facility only

Labor - 480 hours @ \$15.21 =	\$7,300	
Model Materials	500	
Base	250	
Cover (2 Sections)	<u>400</u>	
	\$8,450	\$ 8,450
Travel: Canada - 3 men (3 days)		
Air Fare - 3 @ \$285.52	857	
Taxi - \$30.00	30	
Per Diem - 9 man days @ \$35	315	
France - 3 men (5 days)		
Air Fare - 3 @ \$538.70	1,616	
Taxi - \$40.00	40	
Per Diem - 15 man days @ \$50	<u>750</u>	
	\$3,608	3,608
Reproductions		350
Long Distance Telephone, Postage, etc.		250
Value Management		
Value Management Workshop - 12 men x 40 hours @ \$20.	9,600	
Task Team Effort - 4 men x 84 hours @ \$20	<u>6,720</u>	
S u b t o t a l		<u>\$28,978</u>
TOTAL FEE ---- PRODUCTION PROCESS CONCEPTS		<u>\$ 28,978</u>
		<u>\$179,925</u>

* Rates shown are based on current rates effective July 31, 1974.
Escalation Factor is based on 6% increase each December 1.
Escalation for this period is 10/13 of 6% = 0.0462.



Schedule " III "

July 31, 1974

DMJM-PHILLIPS-REISTER

IB (2) - DESIGN CONCEPT SERVICES FOR BUILDING & SITE FACILITIES

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
Project Director	50	\$34.30	\$ 1,715	
Project Manager	<u>480</u>	34.13	<u>16,382</u>	
S u b t o t a l	530		\$18,097	\$ 18,097
<u>Architectural & Support</u>				
Project Architect	1,120	23.98	26,858	
Arch. Design	1,120	21.66	24,259	
Arch. Production	1,120	15.71	17,595	
Interiors (Color)	-0-		-0-	
Specifications	-0-		-0-	
Estimating	200	23.28	4,656	
Check & Coordinate	60	19.84	1,190	
Tech. Type & Report	<u>240</u>	11.02	<u>2,645</u>	
S u b t o t a l	3,860		\$77,203	\$ 77,203
<u>Engineering</u>				
Civil	300	17.74	\$ 5,322	
Structural	<u>1,200</u>	17.74	<u>21,288</u>	
S u b t o t a l	1,500		\$26,610	<u>26,610</u>
S u b t o t a l				\$121,910
* Escalation Factor @ 0.06				<u>7,315</u>
S u b t o t a l				\$129,225
<u>Engineering - (Sub-Contract)</u>				
Landscape Architect			\$ 1,495	
Mechanical (HVAC)			12,800	
Mechanical (Plumbing)			8,000	
Electrical			<u>11,200</u>	
S u b t o t a l			\$33,495	
Profit @ 10%			<u>3,350</u>	
S u b t o t a l			\$36,845	<u>36,845</u>
TOTAL BASIC FEE ---- BUILDING CONCEPT				\$166,070

(Cont'd)



Schedule " III "

July 31, 1974

DMJM-PHILLIPS-REISTER

IB (2) - DESIGN CONCEPT SERVICES FOR BUILDING & SITE FACILITIES (Cont'd)

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
<u>Non-Design Costs</u>				
Travel: Canada - 3 men (3 days)				
Air Fare - 3 @ \$285.52			\$ 857	
Taxi - 30.			30	
Per Diem - 9 man days @ \$35			315	
France - 3 men (5 days)				
Air Fare - 3 @ \$538.70			1,616	
Taxi \$ 40			40	
Per Diem - 15 man days @ \$50			750	
			<u>\$ 3,608</u>	
Reproductions			500	
Long Distance Telephone, Postage, etc.			250	
Value Management				
Task team effort - 7 men x 84 hours @ \$20			<u>11,760</u>	
			\$16,118	\$ 16,118
<u>Outside Services (Special Consultants)</u>				
Acoustical 1.B (5)			\$42,500	
Firesafety 1.B (2)			<u>10,000</u>	
Subtotal			\$52,500	
Coordination & Profit @ 10%			<u>5,250</u>	
Subtotal			\$57,750	<u>57,750</u>
TOTAL FEE ---- BUILDING CONCEPT				<u>\$239,938</u>

* Rates shown are based on current rates effective July 31, 1974.
Escalation factor is based on 6% increase each December 1.



Schedule " IV "

July 31, 1974

DMJM-PHILLIPS-REISTER

IC - TENTATIVE DESIGN SERVICES FOR BUILDING & SITE FACILITIES

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
Project Director	70	\$34.30	\$ 2,401	
Project Manager	400	34.13	13,652	
	470		\$16,053	\$ 16,053
<u>Architectural & Support</u>				
Project Architect	800	23.98	19,184	
Arch. Design	2,400	21.66	51,984	
Arch. Production	1,800	15.71	28,278	
Interiors (Color)	60	15.21	913	
Specifications	200	19.82	3,964	
Estimating	300	23.28	6,984	
Check & Coordinate	80	19.84	1,587	
Tech. Type & Report	360	11.02	3,967	
S u b t o t a l	6,000		\$116,861	116,861
<u>Engineering</u>				
Civil	450	17.74	7,983	
Structural	2,880	17.74	51,091	
S u b t o t a l	3,330		\$ 59,074	59,074
S u b t o t a l				\$191,988
* Escalation Factor @ 0.06				11,519
S u b t o t a l				\$203,507
<u>Engineering (Sub-Contract)</u>				
Landscape Architect			\$ 3,522	
Mechanical (HVAC)			23,200	
Mechanical (Plumbing)			14,500	
Electrical			20,300	
S u b t o t a l			\$ 61,522	
Profit @ 10%			6,152	
S u b t o t a l			\$ 67,674	\$ 67,674
TOTAL BASIC FEE ----- BUILDING TENTATIVE				\$271,181

(Cont'd)



Schedule " IV "

July 31, 1974

DMJM-PHILLIPS-REISTER

IC - TENTATIVE DESIGN SERVICES FOR BUILDING & SITE FACILITIES (Cont'd)

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
<u>Non-Design Costs</u>				
Model (35 acres @ 1/8" Scale)				
Labor - 1,440 hours @ \$15.21			\$21,902	
Model Materials			3,000	
Contours			1,800	
Base			400	
Cover (4 sections)			800	
			<u>\$27,902</u>	
Reproductions			3,060	
Long Distance Telephone, Postage, etc.			250	
Value Management 1.C (6)				
Task Team Effort - 8 men x 170 hours @ \$20.			<u>27,200</u>	
			\$58,412	\$58,412
<u>Outside Services - (Special Consultants)</u>				
Acoustical 1.C (13)			8,500	
Firesafety 1.C			<u>5,000</u>	
Subtotal			\$13,500	
Coordination & Profit @ 10%			<u>1,350</u>	
Subtotal			\$14,850	<u>14,850</u>
TOTAL FEE ---- BUILDING TENTATIVES				<u>\$344,443</u>

* Rates shown are based on current rates effective July 31, 1974.
Escalation factor is based on 6% increase each December 1.



Schedule " V "

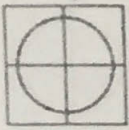
July 31, 1974

DMJM-PHILLIPS-REISTER

1D - PRODUCTION PROCESS PROCUREMENT DOCUMENTS

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
Project Director	20	\$34.30	\$ 686	
Project Manager	240	34.13	8,191	
S u b t o t a l	260		\$ 8,877	\$ 8,877
<u>Process Engineering</u>				
Process Engineer	800	22.51	18,008	
Process Production	800	14.56	11,648	
Mechanical Engineer	240	20.58	4,939	
Electrical Engineer	240	18.61	4,466	
Specifications	240	19.82	4,757	
Estimating	200	23.28	4,656	
Tech. Type & Reports	100	11.02	1,102	
S u b t o t a l	2,620		\$49,576	49,576
S u b t o t a l				\$ 58,453
* Escalation Factor @ 0.06				3,507
TOTAL BASIC FEE ---- PROCESS PROCUREMENT				\$ 61,960
<u>Non-Design Costs</u>				
Travel to Equipment Sources:				
20 man-trips - 3 days				
Fare & Taxi - 20 men @ \$200.00			\$ 4,000	
Per Diem - 60 man days @ \$35.00			2,100	
			\$ 6,100	
Reproductions			320	
Long Distance Telephone, Postage, etc.			150	
Value Management ID (10)				
Task team effort - 4 men x 170 hours @ \$20			13,600	
			\$20,170	20,170
<u>Outside Services (Special Consultants)</u>				
Acoustical ID (II)			\$ 7,000	
S u b t o t a l			\$ 7,000	
Profit @ 10%			700	
S u b t o t a l			\$ 7,700	7,700
TOTAL FEE ---- PROCESS PROCUREMENT				\$ 89,830

* Rates shown are based on current rates effective July 31, 1974.
Escalation factor is based on 6% increase each December 1.



Schedule " VI "

July 31, 1974

DMJM-PHILLIPS-REISTER

IE (1) - PRODUCTION PROCESS INSTALLATION DOCUMENTS -
(INTERMEDIATE AND FINAL) WORKING DRAWINGS

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
Project Director	120	\$34.30	\$ 4,116	
Project Manager	<u>1,040</u>	34.13	<u>35,495</u>	
S u b t o t a l	1,160		\$ 39,611	\$ 39,611
<u>Process Engineering</u>				
Process Engineer	2,400	22.51	54,024	
Mechanical Engineer	2,400	20.58	49,392	
Electrical Engineer	2,400	18.61	44,664	
Structural Engineer	1,000	17.74	17,740	
Process Design	4,800	19.34	95,232	
Process Draftsmen	6,200	14.56	90,272	
Specifications	500	19.82	9,910	
Estimating	500	23.28	11,640	
Check & Coordinate	500	18.04	9,020	
Tech. Type & Reports	<u>1,500</u>	11.02	<u>16,530</u>	
S u b t o t a l	22,200		\$398,424	\$398,424
S u b t o t a l				\$438,035
* Escalation Factor @ 0.124				<u>54,316</u>
TOTAL BASIC FEE ---- PROCESS INSTALLATION				\$492,351

NOTE: Above fee is based on furnished schedule. If Intermediate Working Drawing period is scheduled to start immediately upon approval of Procurement Documents, Intermediate and Final Working Drawing Fee may be split on a 28-30 ratio and will cause a reduction in the escalation factor to 0.093 for a monetary savings of \$13,579.00

Non-Design Costs

<u>Travel to Equipment Sources</u>			
30 man trips - 3 days each trip			
Fare & Taxi - 30 @ \$200		\$ 6,000	
Per Diem - 90 man days @ \$35.00		<u>3,150</u>	
		\$ 9,150	
Reproductions		1,620	
Long Distance Telephone, Postage, etc.		2,500	
Value Management IE (II)			
Task Team Effort - 4 man x 170 hours @ \$20.00		<u>13,600</u>	
		\$26,870	
TOTAL FEE ---- PROCESS INSTALLATION			<u>26,870</u>
			<u>\$519,221</u>

* Rates shown are based on current rates effective July 31, 1974.
Escalation Factor is based on 6% increase each December 1.



Schedule " VII "

July 31, 1974

DMJM-PHILLIPS-REISTER

IE (2) - WORKING DRAWING SERVICES FOR BUILDING & SITE FACILITIES

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
Project Director	140	\$34.30	\$ 4,802	
Project Manager	<u>1,240</u>	34.13	<u>42,321</u>	
S u b t o t a l	1,380		\$47,123	\$ 47,123
<u>Architectural & Support</u>				
Project Architect	1,880	23.98	45,082	
Arch. Design	1,080	21.66	23,393	
Arch. Production	13,800	15.71	216,798	
Interiors (Color)	240	15.21	3,650	
Specifications	960	19.82	19,027	
Estimating	960	23.28	22,349	
Check & Coordinate	280	19.84	5,555	
Tech. Type & Report	<u>1,160</u>	11.02	<u>12,783</u>	
S u b t o t a l	20,360		\$348,637	\$348,637
<u>Engineering</u>				
Civil	1,450	17.74	25,723	
Structural	<u>10,120</u>	17.74	<u>179,529</u>	
S u b t o t a l	11,570		\$205,252	<u>205,252</u>
S u b t o t a l				\$601,012
* Escalation Factor @ 0.124				<u>74,525</u>
S u b t o t a l				\$675,537
<u>Engineering (Sub-Contract)</u>				
Landscape Architect			\$ 5,600	
Mechanical (HVAC)			94,400	
Mechanical (Plumbing)			59,000	
Electrical			<u>82,600</u>	
S u b t o t a l			\$241,600	
Profit @ 10%			<u>24,160</u>	
S u b t o t a l			\$265,760	<u>\$265,760</u>
TOTAL BASIC FEE - BUILDING WORKING DRAWINGS				\$941,297

(Cont'd)



Schedule " VII "

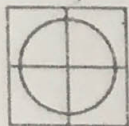
July 31, 1974

DMJM-PHILLIPS-REISTER

IE (2) - WORKING DRAWING SERVICES FOR BUILDING & SITE FACILITIES (Cont'd)

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
<u>Non-Design Costs</u>				
Travel - 5 man trips - 3 days				
Fare & Taxi - 5 trips @ \$200			\$ 1,000	
Per Diem - 15 man days @ \$35			<u>525</u>	
			\$ 1,525	
Reproductions			10,200	
Long Distance Telephone, Postage, etc.			450	
Value Management IE (II)				
Task Team Effort - 7 men x 128 hours @ \$20			<u>17,920</u>	
S u b t o t a l			\$30,095	\$ 30,095
<u>Outside Services (Special Consultants)</u>				
Firesafety IE (2)			4,000	
Acoustical IE (12)			<u>6,500</u>	
S u b t o t a l			\$10,500	
Coordination & Profit @ 10%			<u>1,050</u>	
S u b t o t a l			\$11,550	<u>11,550</u>
TOTAL FEE ---- BUILDING WORKING DRAWINGS				<u>\$982,942</u>

* Rates shown are based on current rates effective July 31, 1974.
Escalation factor is based on 6% increase each Dec. 1.



Schedule " VIII "

July 31, 1974

DMJM-PHILLIPS-REISTER

IF (1) a,b,c,d,e,g,h,i - IF (2) - POST CONSTRUCTION CONTRACT AWARD
SERVICES FOR BUILDING & SITE FACILITIES

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
Project Director	40	\$34.30	\$ 1,372	
Project Manager	<u>660</u>	34.13	<u>22,526</u>	
S u b t o t a l	700		\$ 23,898	\$ 23,898

Architectural & Support

Project Architect	520	23.98	12,470	
Arch. Design	240	21.66	5,198	
Arch. Production	2,660	15.71	41,789	<i>Very what!</i>
Interiors (Color)	40	15.21	608	
Check & Coordinate	240	19.84	4,762	
Tech. Type & Report	<u>240</u>	11.02	<u>2,645</u>	
S u b t o t a l	3,940		\$ 67,472	67,472

Engineering

Civil	300	17.74	5,322	
Structural	<u>2,020</u>	17.74	<u>35,835</u>	
S u b t o t a l	2,320		\$ 41,157	\$ 41,157
S u b t o t a l				\$132,527

* Escalation Factor:

29.2% @ 0.124 Escalation Factor	4,799
50% @ 0.191 Escalation Factor	12,656
20.8% @ 0.262 Escalation Factor	<u>7,222</u>

S u b t o t a l	\$157,204
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Engineering (Sub-Contract)

Landscape Architect	\$ 1,500	
Mechanical (HVAC)	16,000	
Mechanical (Plumbing)	10,000	
Electrical	<u>14,000</u>	
S u b t o t a l	\$ 41,500	
Profit @ 10%	<u>4,150</u>	
S u b t o t a l	\$ 45,650	45,650

TOTAL BASIC FEE ---- BUILDING POST CONSTRUCTION	\$202,854
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(Cont'd)



Schedule " VIII "

July 31, 1974

DMJM-PHILLIPS-REISTER

IF (1) a,b,c,d,e,g,h,i - IF (2) - POST CONSTRUCTION CONTRACT AWARD
SERVICES FOR BUILDING & SITE FACILITIES (Cont'd)

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
<u>Non-Design Costs</u>				
Reproductions			\$ 100	
Long Distance Telephone, Postage, etc.			150	
Value Management IF (1) h				
Task Team effort - 7 men x 84 hours @ \$20			<u>11,760</u>	
S u b t o t a l			\$12,010	\$ 12,010
<u>Outside Services (Special Consultant)</u>				
Firesafety IF (2)			6,000	
Acoustical IF (1) i			<u>6,000</u>	
S u b t o t a l			\$12,000	
Coordination & Profit @ 10%			<u>1,200</u>	
			\$13,200	<u>13,200</u>
TOTAL FEE - BUILDING POST CONSTRUCTION				<u>\$228,064</u>

* Rates shown are based on current rates effective July 31, 1974.
Escalation factor is based on 6% increase each Dec. 1.



Schedule " IX "

July 31, 1974

DMJM-PHILLIPS-REISTER

IF (1) f - IF (3) - POST CONSTRUCTION CONTRACT AWARD
SERVICES FOR PRODUCTION PROCESS

<u>Categories</u>	<u>Man Hours</u>	<u>*Average Rate</u>	<u>Amount</u>	<u>Totals</u>
Project Director	40	\$34.30	\$ 1,372	
Project Manager	<u>160</u>	34.13	<u>5,461</u>	
Subtotal	200		\$ 6,833	\$ 6,833
<u>Process Engineering</u>				
Process Engineer	1,250	22.51	28,138	
Process Design	100	19.84	1,984	
Process Production	400	14.56	5,824	
Mechanical Engineer	600	20.58	12,348	
Electrical Engineer	500	18.61	9,305	
Structural Engineer	180	17.74	3,193	
Tech. Type & Report	<u>140</u>	11.02	<u>1,543</u>	
Subtotal	3,170		\$62,335	\$62,335
Subtotal				\$69,168
* Escalation Factor:				
56.2% @ 0.191 Escalation Factor				7,425
43.8% @ 0.262 Escalation Factor				<u>7,937</u>
BASIC FEE ---- PROCESS POST CONSTRUCTION				\$84,530
<u>Non-Design Costs</u>				
Travel for equipment check				
15 man trips - 2 days			3,000	
Fare & Taxi - 15 @ \$200			1,050	
Per Diem - 30 man days @ \$35			500	
Reproductions			150	
Long Distance Telephone, Postage, etc.				
Value Management				
Task Team effort - 4 men x 84 hours @ \$20			<u>6,720</u>	
			\$11,420	\$11,420
TOTAL FEE ---- PROCESS POST CONSTRUCTION				<u>\$95,950</u>

* Rates shown are based on current rates effective July 31, 1974.
Escalation factor is based on 6% increase each Dec. 1.



Schedule "X"

July 31, 1974

DMJM-PHILLIPS-REISTER

IG - CONSTRUCTION SUPERVISION SERVICES

IG (1) Principal services estimated at 3 days per month for a maximum of 24 months:

Fee per month -----	\$ 1,143.00
Miscellaneous Expenses -----	107.00
Fixed Fee/Month -----	1,250.00
Total Fee for 24 months -----	30,000.00

Total Fee may be reduced proportionately by months if construction is completed prior to the 24 month period and no services are required for the remaining period.

Extension of principal time. Principals' time may be extended by month-to-month not to exceed an additional 6 month period at the same rate of \$1,250.00 per month.

IG (2) Services will be furnished at the hourly rate described below based on performance period shown on Schedule (increased at 6% / year):

Principal -----	\$47.64 / Hr.
Project Architect -----	28.56 / Hr.
Structural Engineer -----	21.13 / Hr.
Electrical Engineer -----	22.16 / Hr.
Landscape Architect -----	27.09 / Hr.
Civil Engineer -----	21.13 / Hr.
Mechanical Engineer -----	24.51 / Hr.

For purposes of establishing a maximum estimate of consulting services a maximum of 4,800 hours aggregate for the above rates are assumed (all categories except Principal) at an average rate of \$24.10 / hour ----- \$115,680

A maximum of 200 hours is assumed for Principals ----- 9,528

Acoustical Consult. \$75.00/hr - 8 hr. Min. (incl. travel) 15,000

Firesafety Consult. \$60.00/hr - 8 hr. Min. (incl. travel) 12,000

A maximum of 200 hours is assumed for each of the two consultants - Acoustical and Firesafety.

Fixed Maximum Fee for 24 months for consulting services -- \$152,208



July 31, 1974

Exhibit "A"

DMJM-PHILLIPS-REISTER

HOURLY RATE SCHEDULE

CATEGORY	Base Rate	20% Fringe	95% Overhead	Sub- Total	10% Fee	Average Rate
Project Director	\$14.50	\$2.90	\$13.78	\$31.18	\$3.12	\$34.30
Project Manager	14.43	2.89	13.71	31.03	3.10	34.13
Project Architect	10.14	2.03	9.63	21.80	2.18	23.98
Architect. Design	9.16	1.83	8.70	19.69	1.97	21.66
Architect. Product.	6.64	1.33	6.31	14.28	1.43	15.71
Interiors (Color)	6.43	1.29	6.11	13.83	1.38	15.21
Specifications	8.38	1.68	7.96	18.02	1.80	19.82
Estimating	9.84	1.97	9.35	21.16	2.12	23.28
Check & Coord.	8.39	1.68	7.97	18.04	1.80	19.84
Const. Admin.	9.00	1.80	8.55	19.35	1.94	21.29
Tech. Type & Repro.	4.66	.93	4.43	10.02	1.00	11.02
Civil Engineering	7.50	1.50	7.13	16.13	1.61	17.74
Struct. Engineering	7.50	1.50	7.13	16.13	1.61	17.74
Mech. - HVAC	8.70	1.74	8.27	18.71	1.87	20.58
Mech. - Plumbing	7.29	1.46	6.93	15.68	1.57	17.25
Electrical	7.87	1.57	7.48	16.92	1.69	18.61
Process Engineering	9.52	1.90	9.04	20.46	2.05	22.51
Process Design	8.39	1.68	7.97	18.04	1.80	19.84
Process Production	6.16	1.23	5.85	13.24	1.32	14.56

NOTES:

- (1) "CATEGORY" is the usual cost accounting classification into which Project is segregated and against which costs are recorded.
- (2) "BASE RATE" is the actual salaries being paid to all classifications and skill levels working within a category. Rate = current experience.
- (3) Fringes and Overhead are in accordance with current experience.
- (4) Cognizant Audit Agency is:
Defense Contract Audit Agency
11099 South La Cienega Boulevard
Los Angeles, California
Mr. Frank Galez (213) 643-2381



Exhibit " B "

July 31, 1974

DMJM-PHILLIPS-REISTER

PROPOSED CONSULTANTS

Mechanical and Electrical - Building and Site

Swanson-Rink and Associates, Inc.
1640 Boulder
Denver, Colorado 80211
Phone: (303) 433-6721

Landscape Architect

Chris G. Moritz, Inc.
495 South Jersey Street
Denver, Colorado 80202
Phone: (303) 333-2175

Acoustical Consultant

Bolt Beranek and Newman, Inc.
21120 Vanowen Street
Canoga Park, California 91303
Phone: (213) 347-8360

Firesafety Consultant

Rolf Jensen and Associates, Inc.
100 Wilmot Road
Deerfield, Illinois 60015
Phone: (312) 948-0700

August 6, 1974

8PC

Project No. N-CO-72-600 - New Denver Mint
Pre-negotiation Meeting with Architect-Engineer

MEMO TO FILE

At 1:00 p.m. on August 5, 1974 a meeting was held in the office of Construction Management Division for the purpose of discussing the manner in which the Architect-Engineer prepared his Revised Design Proposal and to lay some general ground rules for the upcoming audit of that proposal. The following were in attendance:

Floyd Reister, Architect-Engineer
Bill Thomas, Chief, GSA Field Audit Office
Don Dick, GSA Auditor
Bruce Nicoll, Construction Engineer, GSA
Dave Gess, Project Director, GSA

Mr. Reister explained how he put together the revised proposal using wage rate information received from the DMJM office in Los Angeles. The LA office was also responsible for the original proposed salary figures. Mr. Reister explained how they had reduced the number of man hours in the revised proposal and revised the proposed staffing to reflect the current schedule. Mr. Reister furnished the following information on how they propose to accomplish the work under this project.

1. All process engineering design work will be done in Denver by DMJM people transferred from the LA office. The process estimating probably will be done in the LA office.
2. The interior design will be done by DMJM people, possibly in Denver, but more likely in Los Angeles.
3. Specifications for the building proper will be written by a man yet to be hired for the Denver office or possibly in the Los Angeles office.
4. The estimates for the building and support facilities will be done primarily by Mr. Ed Hester of the Denver office.
5. Architectural production will be accomplished by a combination of current Denver personnel and LA personnel relocated to Denver.

6. The architectural design concept may be accomplished by a competition which DMJM is giving consideration to holding within their own organization. This may involve their Washington, Los Angeles and Denver offices.
7. All civil and structural engineering work will be accomplished by the current Denver staff.
8. All typing and technical work will be accomplished in Denver.
9. DMJM personnel currently located in Los Angeles will be re-assigned to Denver to do all process equipment design and the mechanical, electrical and anti-pollution work associated with same.
10. Swanson-Rink and Associates located in Denver will do all of the building mechanical and electrical work and provide utilities necessary down to the panels to feed the process equipment design work accomplished by DMJM personnel. DMJM's process design Engineers will design all anti-pollution equipment and recovery systems, and will furnish information to Swanson-Rink and Associates for final coordination and disposition. (See Swanson-Rink and Associates' letter of August 2, 1974 to DMJM - Phillips-Reister, Inc.)

Where the A-E's proposal has shown wage rates for particular categories these figures are not based on an individual's wage rate, but are based on the weighed average wage rate of the personnel they propose to use on the project.

The proposals the Architect-Engineer has received from the specialty consultants consisting of the Acoustical Consultant, landscaper and Firesafety Consultant were briefly discussed. The Architect-Engineer was requested to obtain a detailed breakdown of the proposed fee from the Acoustical Consultant. The high rates proposed by the Acoustical and Firesafety Consultants were also discussed and the Architect-Engineer was requested to obtain a breakdown of the post-construction services rate so possibly a more reasonable rate figure could be negotiated. (Travel costs are to be broken down).

The possibility of using a local Acoustical Consultant was discussed. Mr. Reister indicated that there was one consultant in the area, but that his office had not made a thorough investigation of the firm.

We confirmed that we would be making an audit of the Swanson-Rink and Associates firm, but possibly not of the other consultants. Mr. Reister expressed his full cooperation and insured us that his files were open for our immediate audit, as well as that of the Swanson-Rink and Associates firm.

DAVID L. GESS
Project Director
New Denver Mint

1A - PROGRAMMING SERVICES FOR BUILDING AND PROCESS EQUIPMENT

Time 6 Weeks (240 Hours)

<u>CATEGORIES</u>	<u>MAN-HOURS</u>	<u>RATE</u>	<u>AMOUNT</u>
Project Director	60	33.11	\$ 1,987
Project Manager	240	28.38	6,811
Project Architect	160	23.65	3,784
Civil Engineer	40	17.73	710
Structural Engineer	40	17.73	710
Mechanical Engineer - HVAC	100	17.73	1,773
Mech. Engineer - Plumbing	40	16.55	662
Electrical	80	17.73	1,420
Architectural Design	160	20.10	3,216
Process Engineer (2)	480	25.00	12,000
Estimator	80	18.92	1,514
Drafting	360	15.01	5,404
Typing & Reproduction	100	10.65	<u>1,065</u>
			\$ 41,056

REIMBURSABLES (✕)

Travel: 5 men - 3 trips - 3 days each

Fare = 15 men @ \$200.00 = \$ 3,000.00

Per Diem = 45 man-days @ \$35.00 = 1,575.00

4,575

\$ 45,631

F. Rhea Estimate

1B (1) - DESIGN CONCEPT - PRODUCTION PROCESS

Time - 16 Weeks (640 Hours)

<u>CATEGORIES</u>	<u>MAN-HOURS</u>	<u>RATE</u>	<u>AMOUNT</u>
Project Director	40	33.11	\$ 1,324
Project Manager	260	28.38	7,379
Process Engineers (3 Ind.)	1,920	25.00	48,000
Process Designers			
2-Mat'l Handling	1,280		
1-Fuel Studies	- 160		
1-Mechanical	- 320		
1-Electrical	- 320		
1-Structural	- 320		
	<u>2,400</u>	17.73	42,552
Typing & Reproduction	200	10.65	2,130
			<u>\$101,385</u>

REIMBURSABLES

Model	\$ 10,000	
Travel	<u>10,675</u>	<u>20,675</u>
		<u>\$122,060</u>

Value Engineering by Engineers listed above

1D(2) - PROCUREMENT DOCUMENTS FOR PRODUCTION PROCESS

Time - 4 Weeks (160 Hours)

Estimate by DMJM - Phillips. Reister okay as is, except for Reproduction (O.H.) and Value Engineering (by principals included under Process Engineering):

Project Manager	500	\$ 46,329	17,029
		7,625	
		\$ 53,954	

DRAWINGS FOR MATERIALS HANDLING, ETC.

30 Drawings, 125 Man-Hours per Drawing = 3,750 Man-Hours

1/3 Process Engineers	1,250	25.00	31,250
1/3 Other Engineers	1,250	17.73	22,163
1/3 Drafting	1,250	15.01	18,763

DRAWINGS FOR INSTALLATION OF EQUIPMENT

125 Drawings @ 100 Man-Hours per Drawing = 12,500 Man-Hours

1/3 Process Engineers	4,167	25.00	104,175
1/3 Other Engineers	4,167	17.73	73,881
1/3 Drafting	4,167	15.01	62,547

Specifications	500	16.35	8,275
----------------	-----	-------	-------

Estimating	300	18.93	5,679
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Tech. Typing & Repro.	1,000	10.65	10,650
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\$154,522

INDIRECTS

Travel			15,000
--------	--	--	--------

Value Engineering @ 3% of Direct			4,636
----------------------------------	--	--	-------

Cost-of-Living Increases - 2.75% of Direct			4,236
--	--	--	-------

TOTAL			\$178,494
-------	--	--	-----------

1E(1) - EQUIPMENT INSTALLATION DRAWINGS

PLUS

1D(3) - WORKING DRAWINGS FOR PROCESS AUTOMATION, CONVEYORS, ETC.

Time - 26 Weeks (1040 Hours)
 (Actual work time about 15 weeks (600 hours))

<u>CATEGORIES</u>	<u>MAN-HOURS</u>	<u>RATE</u>	<u>AMOUNT</u>
Project Director	120	33.11	\$ 3,973
Project Manager	600	28.38	17,028

DRAWINGS FOR MATERIALS HANDLING, AUTOMATION, ETC.

30 Drawings, 125 Man-Hours per Drawing = 3,750 Man-Hours

1/3 Process Engineers	1,250	25.00	31,250
1/3 Other Engineers	1,250	17.73	22,163
1/3 Drafting	1,250	15.01	18,763

DRAWINGS FOR INSTALLATION OF EQUIPMENT

125 Drawings @ 100 Man-Hours per Drawing = 12,500 Man-Hours

1/3 Process Engineers	4,167	25.00	104,175
1/3 Other Engineers	4,167	17.73	73,881
1/3 Drafting	4,167	15.01	62,547
Specifications	500	16.55	8,275
Estimating	300	18.92	5,676
Tech. Typing & Repro.	1,000	10.65	10,650
			<u>\$358,381</u>

REIMBURSABLES

Travel		15,250
Value Engineering @ 3% of Direct		10,740
Cost-of-Living Increase - 2.75% of Direct		9,855
TOTAL		<u>\$394,226</u>

A/E Fee Calculations

9/27/73

Based on Scope of Services

①

Item A - Programming Services - Allowed
Time - 4 Weeks

- (1) 1 Project Coordinator
1 Architect
1 Civil
1 Mechanical
1 Electrical
1 Industrial (Systems)

6 men for 1 month @ 2,000 = 12,000

1 Drafter @ 1,000 - 1,000

13,000

13,000

(2) Super-Preliminary Planning Schedule

200

200

(3) Preliminary Estimate

2 Estimators / 1 month / 1,800

3,600

Typing / Reproductions

200

3,800

\$ 17,000

A/E Fee Calculations

9/26/73

(2)

B. Design Concept

(1) Production Process - Allowed Time - 16 Weeks

(a) 1 Principal @ 2,500 month } Basic - 2,500
 3 Industrial Engineers @ 2,000 month } 6,000
 + Mechanical }
 + Electrical } 14,500
 + Structural } 8,500
 14,500 x 4 mo = 58,000
 8,500

34,000
~~58,000~~

(b) Material Handling Studies
 3 Eng @ 2,000 x 4 mo.
 2

16,000
~~24,000~~

(c) Three dimensional model

5,000

(d) Final studies
 2 Engineers @ 2,000 x 4

16,000

(e) Update sketch
 2 sketchers 11 month @ 1800

3600

(f) Draftsman @ 1,000
 for 4 months

4,000

(g) Project Coordinator @ 2500 x 4

10,000

~~\$ 120,600~~
 \$ 88,600

9/26/73

A/E Fee Calculations

B. Design Concept

(2) Buildings and Site Development - ^{Allotted Time} 4 Weeks after approval

(a) Site studies & analysis
- topo, soils work, existing improvements

1 Civil 2 Biologists, 1 Geologist

~~Start after completion of programming phase~~ 12,000

5 for two months @ 2,000 - ~~20,000~~

3

(b) Building layout

Process system envelope

~~2 Civil~~ 2 Mechanical, structural,

uses, roof, interior divisions,

noise attenuation, pollution measurement

& control

2 Civil

2 Mechanical

2 Electrical

2 Pollution control

2 Sound attenuation

1 Team Leader (architect)

1 @ 2,000 for 4 months

Office Bldg/Support area

Architect / Team Leader

Structural

1 Architect / Team Leader

1 Architect

1 Structural

1 Mechanical

1 Electrical

2 Pollution experts

2 Sound attenuation

+ office space/support area

~~88,000~~

72,000

+ 12,000

11 @ 2,000

44

84

9 @ 2,000

18

A/R Fee

(4)

B (2) Continued

Carry over

~~20,000~~
~~112,000~~

(c) Update estimate
2 Estimation / 1 month @ 1800

3,600

(d) Drafting
3 Draftsmen @ 1,000 x 4 months

12,000

(e) Project wordbook 2,500 x 4

10,000

(f) Presentation to Advisory Panel

2 Days / 4 men = 1/2 mo @ 2,000

3,000

+ Special Draw / Picture / Display
1,000

8,000

(g) Value Engineering
2 Eng @ 2,000 x 4 months

~~16,000~~

1

~~\$ 176,600~~

36

34,600

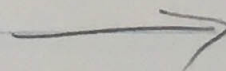
12,000

\$ 72,000

Carryover from
Page 3

118,600

120,600



⑤

9/26/73

A/E Fee

C. Tentative Design Services - Building/Plot Only
 Allotted Time - 12 Weeks after approval
 completion of Concept

(1) Building/Plot drawings

Foundation - 3 Eng'rs

Estimators - 2

Architects - 2

Structural - 2

Mech - 2

Elec - 2

Plumbing - 2

Sound - 2

Security - 2

Draftsmen - 3

HVAC - 2

V.E. - 2

26

3 mo

@ 2,000/mo

156,000

26 x 2,000
 x 3

Spec 2

2

Spec - 2 @ 1 month x 2,000

4,000

Model

8,000

Diagram + Photo

1,000

Project Coordinator @ 2500 x 3

7,500

176,500

AIK Fee

⑥

9/27/73

Basic Contract Summary

Direct Costs

A. Programming Services	17,000
B(1). Production Concept	88,600
B(2) Buildings/Site Concept	118,600 170,000
C Buildings/Site Testations	176,500

Overhead and General
Expense @ 70% (10%
Sub) , say

Sub 680,000

Profit @ 10%

68,000

748,000

Travel Allowance
5% of Direct

~~20,000~~

768,000

9/27/73

A/E FEE CALCULATIONS

Basic Contract Summary

Direct Costs

A. Programming Services	\$ 17,000
B. (1) Production Concept	88,600
(2) Buildings/Site Concept	118,600 120,600
C. Buildings/Site Tentatives	176,500

Sub-Total	\$ 400,700 402,700
-----------	----------------------------------

Overhead and General

Expense @ 70% (high side)

Profit @ 10%

Travel Allowance - 5% of Direct

	400,000
	281,890
	280,000
	680,000
	684,590
	68,459
	748,000
	753,049
	20,000
	768,000
	773,049

17,000
88,600
120,600
176,500
402,700
281,890
684,590
68,459
753,049
20,000

402,700
281,890

A/E Fee

(7)

9/27/73

D. Survey Production Equipment Potential
and Prepare Procurement Specifications

Relatively New Procurement Packages

- | | |
|----------------------|---------------------------------|
| 1. Intermediate Mill | 5. Analytical Equipment |
| 2. Finishing Mill | 6. Roll Grinders |
| 3. Slitter/Turner | 7. Die Manufacturing Equipment |
| 4. Scrap Baler | 8. Metal Shear |
| 9. Strip Annealers | 9. Truck Scales |
| | 10. Bag Manufacturing Equipment |

Modify Existing Unit Areas

1. Anneal & Clean Line
2. Batching Presses
3. Upset Mills
4. Coining Presses
5. Count & Bag Machine
6. Forklifts
7. Scales

A/E Fee

⑧

9/27/23

D (Cont'd)

"New" Packages
Per package

10 packages x 300 man hours each (one) $\times \$10.00/\text{hr}$ $\text{\$}$ - 30,000

17 only Existing Spec

7 packages x 100 man hours $\times \$10.00/\text{hr}$ - 17,000

Team Leader @ 300 man/hr $\times \$15.00$ - 4,500

Typing, Reproduction
300 hr @ $\$5/\text{hr}$ - 1,500

Sub 43,000

Overhead @ 70% 30,000

73,000

Profit @ 10% 7,000

80,000

A/E Fee

9/27/73

E Prepare Working Drawings

- (1) Completion of Process Design, including
~~Installation Drawings for Equipment Items~~
- Based on number of Drawings Required.

Basic Process Layout Drawings

1 Overall

1 Plan

1 Electrical

1 Mechanical

1 Materials Flow

Minor

Say 5 Drawings

Materials Handling

1 Crane & Conveyer
1 Plan

Details of Automated Line

1 General

1 Controls

3 Structural Supports

5 Assembly Details

5 Electrical

Minor

Say 25 Drawings

30
25 Drawings @ 150 man hours
per @ 100/hr.

45,000

Specifications
& Estimate @ 20%

9,000

General & Test Schedule @ 10%

4,500

Value Engineering @ 5% say

3,000

Project Coordinator \$2500 x 3 mo.

7,500

69,000

AIR Fee

(15)

8/27/73

TE (1) Final Program Design (Cost'd)

Direct Cost	69,000.00	\$ 70,000
O/H and General Expense @ 70%		<u>49,000</u>
		- 119,000
Profit @ 10% say		<u>12,000</u>
		120,000
Profit @ 10%		<u>12,000</u>
		132,000
Trend Allowance		<u>8,000</u>
Total		\$ 140,000

STANDARD FORM 252 AUGUST 1970 EDITION GENERAL SERVICES ADMINISTRATION FED. PROC. REG. (41 CFR) 1-16.701 252-101	ARCHITECT-ENGINEER FIXED-PRICE CONTRACT	1. CONTRACT NO. GS-08B- 2. DATE OF CONTRACT
3. NAME AND ADDRESS OF ARCHITECT-ENGINEER* DMJM - Phillips-Reister Suite 700 910 15th Street Denver, Colorado 80202		
4. DEPARTMENT OR AGENCY AND ADDRESS* General Services Administration Public Buildings Service Building 41, Denver Federal Center, Denver, Colorado 80225		
5. PROJECT TITLE AND LOCATION Denver Denver Mint Denver, Colorado Project No. 05-0061 (72-124)		
6. CONTRACT FOR (<i>General description of services to be provided</i>) <u>Contract for Professional Services</u> The Architect-Engineer shall furnish all programming and all design services for the preparation of bidding documents for the new Denver Mint. The project shall include the complete facility including production process equipment. The project is to be designed in accordance with the Bureau of the Mint requirements and other information furnished by the Government for an estimated construction contract award cost not to exceed \$28 million and an estimated production equipment procurement contract award cost not to exceed \$17 million (cost as of April, 1976). The drawings and specifications shall be prepared so as to provide separate bid documents permitting phased construction of the principal parts of the project facilities and production equipment, A firm will be retained by the Government for construction management services during all phases of the project.		
7. CONTRACT AMOUNT (<i>Express in words and figures</i>)		
8. NEGOTIATION AUTHORITY Negotiation Authority Federal Property and Administrative Services Act of 1949, 63 Stat. 377, as amended; Public Buildings Act of 1959, 73 Stat. 479, as amended.		
9. ADMINISTRATIVE, APPROPRIATION, AND ACCOUNTING DATA		

*Include ZIP code, Area code, and Telephone Number

10. The United States of America (hereinafter called the Government) represented by the Contracting Officer executing this contract and the Architect-Engineer agree to perform this contract in strict accordance with the General Provisions (Standard Form 253) and the documents identified as follows, all of which are made a part of this contract:

Modification to General Provisions (Standard Form 253): Clauses 8, 14, 15 and 16.

Special Provisions: Clauses 1 through 18.

GSA Form 1411: Items 1 through 10.

The parties hereto have executed this contract as of the date recorded in Item 2 above.

SIGNATURES		NAMES AND TITLES (<i>Typed</i>)
11. ARCHITECT-ENGINEER		
A		
B		
C		
D		
12. THE UNITED STATES OF AMERICA		
		Contracting Officer

PROJECT DESCRIPTION
AND
CONSTRUCTION COST ESTIMATE

Name: New Denver Mint

Location: Denver, Colorado

Contract No.: GS-08B-_____

Gross Area: Approximately 400,000 square feet

Estimated Construction Contract Award: 28 million As of April, 1976.

Estimated Production Equipment Procurement Contract Award: 17 million
As of April, 1976.

Description:

The New Denver Mint shall be constructed on a site of approximately 38 acres located on the west bank of the South Platte River between West 19th Avenue and Speer Boulevard. This facility will be primarily a modern industrial/manufacturing plant with the mission of producing domestic coins ranging in denomination from one cent through one dollar, plus some production of proof coins and medals. It includes the necessary administrative and production support space and facilities including the accommodation of public visitors.

This project includes the production process equipment, building, site work and all support facilities. The Government will procure by separate contracts all production process items with auxiliaries and electrical support equipment, and all specialized operating and maintenance equipment. Production process items will be installed by the equipment manufacturers and/or the construction contractor.

Phased equipment procurement and construction is anticipated.

The Government Contracting Officer for this project will be known as the PROJECT DIRECTOR. In addition to programming and design services provided under this contract the Government will secure the services of a CONSTRUCTION MANAGER. Both the A/E and the Construction Manager are responsible to the Project Director.

It is understood that the A/E and the Construction Manager will work as a team from the beginning of the project's life. Refer to sample copy of the Construction Manager's contract for services provided to the Government during design and construction phases.

2.

The drawings and specifications will not indicate nor specify the use of proprietary equipment. The use of trade names will not be permitted nor will specifications be written around any one manufacturer's products or equipment. Equipment and/or installations indicated on the drawings shall be diagrammatic in nature so as not to suggest any one particular manufacturer. Systems shall be designed so that several manufacturers may comply with project requirements. The entire project will be competitive in every respect and in the best interests of the Government and is to be designed within Estimated Contract Awards of \$45 million; estimated contract award amount subject to adjustment as described in Clause 12 of this contract.

The plans, specifications and procurement documents to be prepared under this contract shall include, but not be limited to: production process equipment, demolition, excavation, construction, approach work, trackage, access roads, airconditioning, security system, intercommunication system, fire protection, telephone system, all utilities and utility connections as required for a complete operational facility.

GENERAL PROVISIONS (Architect-Engineer Contract)

1. DEFINITIONS

(a) The term "head of the agency" or "Secretary" as used herein means the Secretary, or any other head of the executive or military department or other Federal agency; and the term "his duly authorized representative" means any person or persons or board (other than the Contracting Officer) authorized to act for the head of the agency or the Secretary.

(b) The term "Contracting Officer" as used herein means the person executing this contract on behalf of the Government and includes a duly appointed successor or authorized representative.

2. RESPONSIBILITY OF THE ARCHITECT-ENGINEER

(a) The Architect-Engineer shall be responsible for the professional quality, technical accuracy and the coordination of all designs, drawings, specifications, and other services furnished by the Architect-Engineer under this contract. The Architect-Engineer shall, without additional compensation, correct or revise any errors or deficiencies in his designs, drawings, specifications, and other services.

(b) Neither the Government's review, approval or acceptance of, nor payment for, any of the services required under this contract shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract, and the Architect-Engineer shall be and remain liable to the Government in accordance with applicable law for all damages to the Government caused by the Architect-Engineer's negligent performance of any of the services furnished under this contract.

(c) The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law.

3. CHANGES

(a) The Contracting Officer may, at any time, by written order, make changes within the general scope of the contract in the services to be performed. If such changes cause an increase or decrease in the Architect-Engineer's cost of, or time required for, performance of any services under this contract, whether or not changed by any order, an equitable adjustment shall be made and the contract shall be modified in writing accordingly. Any claim of the Architect-Engineer for adjustment under this clause must be asserted in writing within 30 days from the date of receipt by the Architect-Engineer of the notification of

change unless the Contracting Officer grants a further period of time before the date of final payment under the contract.

(b) No services for which an additional cost or fee will be charged by the Architect-Engineer shall be furnished without the prior written authorization of the Contracting Officer.

4. TERMINATION

(a) The Contracting Officer may, by written notice to the Architect-Engineer, terminate this contract in whole or in part at any time, either for the Government's convenience or because of the failure of the Architect-Engineer to fulfill his contract obligations. Upon receipt of such notice, the Architect-Engineer shall: (1) immediately discontinue all services affected (unless the notice directs otherwise), and (2) deliver to the Contracting Officer all data, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have been accumulated by the Architect-Engineer in performing this contract, whether completed or in process.

(b) If the termination is for the convenience of the Government, an equitable adjustment in the contract price shall be made, but no amount shall be allowed for anticipated profit on unperformed services.

(c) If the termination is due to the failure of the Architect-Engineer to fulfill his contract obligations, the Government may take over the work and prosecute the same to completion by contract or otherwise. In such case, the Architect-Engineer shall be liable to the Government for any additional cost occasioned to the Government thereby.

(d) If, after notice of termination for failure to fulfill contract obligations, it is determined that the Architect-Engineer had not so failed, the termination shall be deemed to have been effected for the convenience of the Government. In such event, adjustment in the contract price shall be made as provided in paragraph (b) of this clause.

(e) The rights and remedies of the Government provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

5. DISPUTES

(a) Except as otherwise provided in this contract, any dispute concerning a question of fact arising under this contract which is not disposed of by agreement shall be decided by the Contracting Officer, who shall reduce his decision to writing and mail or otherwise furnish a copy thereof

to the Architect-Engineer. The decision of the Contracting Officer shall be final and conclusive unless, within 30 days from the date of receipt of such copy, the Architect-Engineer mails or otherwise furnishes to the Contracting Officer a written appeal addressed to the head of the agency involved. The decision of the head of the agency or his duly authorized representative for the determination of such appeals shall be final and conclusive. This provision shall not be pleaded in any suit involving a question of fact arising under this contract as limiting judicial review of any such decision to cases where fraud by such official or his representative or board is alleged; *Provided, however*, that any such decision shall be final and conclusive unless the same is fraudulent or capricious or arbitrary or so grossly erroneous as necessarily to imply bad faith or is not supported by substantial evidence. In connection with any appeal proceeding under this clause, the Architect-Engineer shall be afforded an opportunity to be heard and to offer evidence in support of his appeal. Pending final decision of a dispute hereunder, the Architect-Engineer shall proceed diligently with the performance of the contract and in accordance with the Contracting Officer's decision.

(b) This Disputes clause does not preclude consideration of questions of law in connection with decisions provided for in paragraph (a) above. Nothing in this contract, however, shall be construed as making final the decision of any administrative official, representative, or board on a question of law.

6. ASSIGNMENT OF CLAIMS

(a) Pursuant to the provisions of the Assignment of Claims Act of 1940, as amended (31 U.S.C. 203, 41 U.S.C. 15), if this contract provides for payments aggregating \$1,000 or more, claims for moneys due or to become due the Architect-Engineer from the Government under this contract may be assigned to a bank, trust company, or other financing institution, including any Federal lending agency, and may thereafter be further assigned and reassigned to any such institution. Any such assignment or reassignment shall cover all amounts payable under this contract and not already paid, and shall not be made to more than one party except that any such assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in such financing. Unless otherwise provided in this contract, payments to assignee of any moneys due or to become due under this contract shall not, to the extent provided in said Act, as amended, be subject to reduction or set-off. (The preceding sentence applies only if this contract is made in time of war or national emergency as defined in said Act; and is with the Department of Defense, the General Services Administration, the Atomic Energy Commission, the National Aeronautics and Space Administration, the Federal Aviation Administration, or any other department or agency of the United States designated by the President pursuant to Clause 4

of the proviso of section 1 of the Assignment of Claims Act of 1940, as amended by the Act of May 15, 1951, 65 Stat. 41.)

(b) In no event shall copies of this contract or of any plans, specifications, or other similar documents relating to work under this contract, if marked "Top Secret," "Secret," or "Confidential," be furnished to any assignee of any claim arising under this contract or to any other person not entitled to receive the same. However, a copy of any part or all of this contract so marked may be furnished, or any information contained therein may be disclosed, to such assignee upon the prior written authorization of the Contracting Officer.

7. GOVERNMENT RIGHTS (UNLIMITED)

The Government shall have unlimited rights, for the benefit of the Government, in all drawings, designs, specifications, notes and other work developed in the performance of this contract, including the right to use same on any other Government work without additional cost to the Government; and with respect thereto the Architect-Engineer agrees to and does hereby grant to the Government a royalty-free license to all such data which he may cover by copyright and to all designs as to which he may assert any rights or establish any claim under the design patent or copyright laws. The Architect-Engineer for a period of three (3) years after completion of the project agrees to furnish and to provide access to the originals or copies of all such materials on the request of the Contracting Officer.

8. EXAMINATION OF RECORDS

(The following clause is applicable if the amount of this contract exceeds \$2,500.)

(a) The Architect-Engineer agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until expiration of 3 years after final payment under this contract, or of the time periods for the particular records specified in Part 1-20 of the Federal Procurement Regulations (41 CFR Part 1-20), whichever expires earlier, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Architect-Engineer involving transactions related to this contract.

(b) The Architect-Engineer further agrees to include in all his subcontracts hereunder a provision to the effect that the subcontractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until expiration of 3 years after final payment under the subcontract, or of the time periods for the particular records specified in Part 1-20 of the Federal Procurement Regulations (41 CFR Part 1-20), whichever expires earlier, have access to and the right to examine any directly pertinent books, documents, papers, and records of such subcontractor, involving transactions related to the subcontract. The term "subcontract" as used in this clause excludes (1) purchase

orders not exceeding \$2,500 and (2) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

9. COVENANT AGAINST CONTINGENT FEES

The Architect-Engineer warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Architect-Engineer for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

10. OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this contract, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

11. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT—OVERTIME COMPENSATION

This contract, to the extent that it is of a character specified in the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333), is subject to the following provisions and to all other applicable provisions and exceptions of such Act and the regulations of the Secretary of Labor thereunder.

(a) Overtime requirements. No Architect-Engineer or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any laborer or mechanic in any workweek in which he is employed on such work to work in excess of 8 hours in any calendar day or in excess of 40 hours in such workweek on work subject to the provisions of the Contract Work Hours and Safety Standards Act unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all such hours worked in excess of 8 hours in any calendar day or in excess of 40 hours in such workweek, whichever is the greater number of overtime hours.

(b) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions of paragraph (a), the Architect-Engineer and any subcontractor responsible therefor shall be liable to any affected employee for his unpaid wages. In addition, such Architect-Engineer and subcontractor shall be liable to the United States for liquidated damages. Such liq-

uidated damages shall be computed with respect to each individual laborer or mechanic employed in violation of the provisions of paragraph (a) in the sum of \$10 for each calendar day on which such employee was required or permitted to be employed on such work in excess of 8 hours or in excess of the standard workweek of 40 hours without payment of the overtime wages required by paragraph (a).

(c) Withholding for unpaid wages and liquidating damages. The Contracting Officer may withhold from the Architect-Engineer, from any moneys payable on account of work performed by the Architect-Engineer or subcontractor, such sums as may administratively be determined to be necessary to satisfy any liabilities of such Architect-Engineer or subcontractor for unpaid wages and liquidated damages as provided in the provisions of paragraph (b).

(d) Subcontracts. The Architect-Engineer shall insert paragraphs (a) through (d) of this clause and the preamble in all subcontracts, and shall require their inclusion in all subcontracts of any tier.

(e) Records. The Architect-Engineer shall maintain payroll records containing the information specified in 29 CFR 516.2(a). Such records shall be preserved for 3 years from the completion of the contract.

12. CONVICT LABOR

In connection with the performance of work under this contract, the Architect-Engineer agrees not to employ any person undergoing sentence of imprisonment at hard labor.

13. EQUAL OPPORTUNITY CLAUSE

(The following clause is applicable unless this contract is exempt under the rules, regulations, and relevant orders of the Secretary of Labor (41 CFR, ch. 60).)

During the performance of this contract, the Architect-Engineer agrees as follows:

(a) The Architect-Engineer will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Architect-Engineer will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Architect-Engineer agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this Equal Opportunity clause.

(b) The Architect-Engineer will, in all solicitations or advertisements for employees placed by or on behalf of the Architect-Engineer, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

(c) The Architect-Engineer will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency Contracting Officer, advising the labor union or workers' representative of the Architect-Engineer's commitments under this Equal Opportunity clause, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Architect-Engineer will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The Architect-Engineer will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the Architect-Engineer's noncompliance with the Equal Opportunity clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended, in whole or in part, and the Architect-Engineer may be declared ineligible for further Government contracts, in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The Architect-Engineer will include the provisions of paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Architect-Engineer will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions, including sanctions for noncompliance; *Provided, however,* That in the event the Architect-Engineer becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Architect-Engineer may request the United States to enter into such litigation to protect the interests of the United States.

MODIFICATIONS TO STANDARD FORM 253
GENERAL PROVISIONS
(Architect-Engineer Contract)

(As used in these modifications, "Contractor" shall mean "Architect-Engineer.")

1. Delete clause 8 in its entirety and substitute the following in lieu thereof:

"8. EXAMINATION OF RECORDS BY COMPTROLLER GENERAL

a. This clause is applicable if the amount of this contract exceeds \$2,500 and was entered into by means of negotiation, including small business restricted advertising, but is not applicable if this contract was entered into by means of formal advertising.

b. The Contractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of 3 years after final payment under this contract or such lesser time specified in either Appendix M of the Armed Services Procurement Regulation or the Federal Procurement Regulations Part 1-20, as appropriate, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Contractor involving transactions related to this contract.

c. The Contractor further agrees to include in all his subcontracts hereunder a provision to the effect that the subcontractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of 3 years after final payment under the subcontract or such lesser time specified in either Appendix M or the Armed Services Procurement Regulation or the Federal Procurement Regulations Part 1-20, as appropriate, have access to and the right to examine any directly pertinent books, documents, papers, and records of such subcontractor, involving transactions related to the subcontract. The term "subcontract" as used in this clause excludes (1) purchase orders not exceeding \$2,500 and (2) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

d. The periods of access and examination described in b and c, above, for records which relate to (1) appeals under the "Disputes" clause of this contract, (2) litigation or the settlement of claims arising out of the performance of this contract, or (3) costs and expenses of this contract as to which exception has been taken by the Comptroller General or any of his duly authorized representatives shall continue until such appeals, litigation, claims, or exceptions have been disposed of."

2. Add clause 14 as follows:

"14. LISTING OF EMPLOYMENT OPENINGS

(This clause is applicable pursuant to 41 CFR 50-250 if this contract is for \$2,500 or more.)

(a) The contractor agrees, in order to provide special emphasis to the employment of qualified disabled veterans and veterans of the Vietnam era, that all suitable employment openings of the contractor which exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract and including those occurring at an establishment other than the one wherein the contract is being performed but excluding those of independently operated corporate affiliates, shall be offered for listing at an appropriate local office of the State employment service system wherein the opening occurs and to provide such reports to such local office regarding employment openings and hires as may be required: Provided, That if this contract is for less than \$10,000 or if it is with a State or local government the reports set forth in paragraphs (c) and (d) are not required.

(b) Listing of employment openings with the employment service system pursuant to this clause shall be made at least concurrently with the use of any other recruitment service or effort and shall involve the normal obligations which attach to the placing of a bona fide job order, including the acceptance of referrals of veterans and nonveterans. This listing of employment openings does not require the hiring of any particular job applicant or from any particular group of job applicants, and nothing herein is intended to relieve the contractor from any requirements in any statutes, Executive orders, or regulations regarding nondiscrimination in employment.

(c) The reports required by paragraph (a) of this clause shall include, but not be limited to, periodic reports which shall be filed at least quarterly with the appropriate local office or, where the contractor has more than one establishment in a State, with the central office of the State employment service. Such reports shall indicate for each establishment (i) the number of individuals who were hired during the reporting period, (ii) the number of those hired who were disabled veterans, and (iii) the number of those hired who were nondisabled veterans of the Vietnam era. The contractor shall submit a report within 30 days after the end of each reporting period wherein any performance is made under this contract. The contractor shall maintain copies of the reports submitted until the expiration of 1 year after final payment under the contract, during which time they shall be made available, upon request, for examination by any authorized representatives of the contracting officer or of the Secretary of Labor.

(d) Whenever the contractor becomes contractually bound by the listing provisions of this clause, he shall advise the employment service system in each State wherein he has establishments of the name and location of each such establishment in the State. As long as the contractor is contractually bound to these provisions and has so advised the State employment system, there is no need to advise the State system of subsequent contracts. The contractor may advise the State system when it is no longer bound by this contract clause.

(e) This clause does not apply to the listing of employment openings which occur and are filed outside of the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, and the Virgin Islands.

(f) This clause does not apply to openings which the contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement. This exclusion does not apply to a particular opening once an employer decides to consider applicants outside of his own organization or employer-union arrangement for that opening.

(g) As used in this clause:

(1) "All suitable employment openings" includes, but is not limited to, openings which occur in the following job categories. Production and nonproduction; plant and office; laborers and mechanics; supervisory and nonsupervisory; technical; and executive, administrative, and professional openings which are compensated on a salary basis of less than \$18,000 per year. The term includes full-time employment, temporary employment of more than 3 days' duration, and part-time employment. It does not include openings which the contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement.

(2) "Appropriate office of the State employment service system" means the local office of the Federal-State national system of public employment office with assigned responsibility for serving the area of the establishment where the employment opening is to be filled, including the District of Columbia, the Commonwealth of Puerto Rico, Guam, and the Virgin Islands.

(3) "Openings which the contractor proposes to fill from within his own organization" means employment openings for which no consideration will be given to persons outside the contractor's own organization (including any affiliates, subsidiaries, and parent companies) and includes any openings which the contractor proposes to fill from regularly established "recall" or "rehire" lists.

(4) "Openings which the contractor proposes *** to fill pursuant to a customary and traditional employer-union hiring arrangement" means employment openings for which no consideration will be given to persons outside of a special hiring arrangement including openings which the contractor proposes to fill from union halls, which is part of the customary and traditional hiring relationship which exists between the contractor and representatives of his employees.

(5) "Disabled veteran" means a person entitled to disability compensation under laws administered by the Veterans Administration for a disability rated at 30 percentum or more, or a person whose discharge or release from active duty was for a disability incurred or aggravated in line of duty.

(6) "Veteran of the Vietnam era" means a person (A) who (i) served on active duty with the Armed Forces for a period of more than 180 days, any part of which occurred after August 5, 1964, and was discharged or released therefrom with other than a dishonorable discharge, or (ii) was discharged or released from active duty for service-connected disability if any part of such duty was performed after August 5, 1964, and (B) who was so discharged or released within the 48 months preceding his application for employment covered by this clause.

(h) If any disabled veteran or veteran of the Vietnam era believes that the contractor (or any first-tier subcontractor) has failed or refuses to comply with the provisions of this contract clause relating to giving special emphasis in employment to veterans, such veteran may file a complaint with the veterans' employment representative at a local State employment service office who with attempt to informally resolve the complaint and then refer the complaint with a report on the attempt to resolve the matter to the State office of the Veterans' Employment Service of the Department of Labor. Such complaint shall then be promptly referred through the Regional Manpower Administrator to the Secretary of Labor who shall investigate such complaint and shall take such action thereon as the facts and circumstances warrant consistent with the terms of this contract and the laws and regulations applicable thereto.

(i) The contractor agrees to place this clause (excluding this paragraph (i)) in any subcontract directly under this contract

3. Add clause 15 as follows:

"15. PRICING OF ADJUSTMENTS

When costs are a factor in any determination of a contract price adjustment pursuant to the "Changes" clause or any other provision of this contract, such costs shall be in accordance with the contract cost principles and procedures in Part 1-15 of the Federal Procurement Regulations (41 CFR 1-15) or Section XV of the Armed Services Procurement Regulation in effect on the date of this contract."

4. Add clause 16 as follows:

"16. PAYMENT OF INTEREST ON CONTRACTORS' CLAIMS

(a) If an appeal is filed by the contractor from a final decision of the contracting officer under the disputes clause of this contract, denying

a claim arising under the contract, simple interest on the amount of the claim finally determined owed by the Government shall be payable to the contractor. Such interest shall be at the rate determined by the Secretary of the Treasury pursuant to Public Law 92-41, 85 Stat. 97, from the date the contractor furnishes to the contracting officer his written appeal under the disputes clause of this contract, to the date of (1) a final judgment by a court of competent jurisdiction, or (2) mailing to the contractor of a supplemental agreement for execution either confirming completed negotiations between the parties or carrying out a decision of a board of contract appeals.

(b) Notwithstanding (a), above, (1) interest shall be applied only from the date payment was due, if such date is later than the filing of appeal, and (2) interest shall not be paid for any period of time that the contracting officer determines the contractor has unduly delayed in pursuing his remedies before a board of contract appeals or a court of competent jurisdiction."

SPECIAL PROVISIONS
(Architect-Engineer Contract)

1. SCOPE OF SERVICES

The Architect-Engineer shall perform all professional services necessary for planning and designing this project including the preparation of bidding documents subject to the Government's exercising the options included hereunder. Such services shall include, but are not limited to, the following:

A. Prepare and Furnish PROGRAMMING SERVICES

(1) Five (5) copies of Final Outline of Architectural Requirements which defines the scope of the project as developed from the Bureau of the Mint's Design Criteria dated July 1, 1973 and other appropriate criteria. The Architect-Engineer shall provide a programmer, or a team of programmers, who shall meet and participate with representatives of the General Services Administration and the Bureau of the Mint as required in Denver, Colorado to prepare a complete outline of program requirements, a narrative program description and functional layout sketches. The program shall include the review and validation, or proposed amendments to criteria prepared by the Government. The completed program shall be presented to GSA and Bureau of the Mint officials in Denver, Colorado for approval.

(2) Five (5) copies and one reproducible (sepia) of a PRELIMINARY PLANNING SCHEDULE for both the design and construction phases of the project. The operating planning schedule (part of the "construction management control system, CMCS") will be prepared by the Construction Manager from input obtained from the Architect-Engineer.

(3) At the time of presentation of the Final Outline of Architectural Requirements, the Architect-Engineer shall furnish a preliminary estimate of project construction cost (architectural, site, structural, mechanical, electrical, and production process equipment costs).

B. Prepare and Furnish DESIGN CONCEPT SERVICES

(1) Four (4) sets of reproducibles (sepias) of the Design Concept of the Production Process Equipment and Layouts. Sketches large enough to illustrate the fundamental character of the concept including equipment layouts, material flow, storage, methods of conveyance, etc.; including a three-dimensional "block" type model of the process layout. Production process

concept submitted to the Contracting Officer for consideration shall also include: engineering economic analysis of alternatives in support of recommended overall layout and component selections; studies of alternatives, including life-cycle cost analysis regarding degree of automation and materials handling systems; studies and design including analysis of the availability, costs and feasibility of various energy sources for process equipment and for the buildings. Update estimate prepared under 1.A(3) above for production process equipment.

(2) Four (4) sets of reproducibles (sepias) of the Design Concept for the facilities including building(s) and site development. Sketches large enough to illustrate the fundamental character of the concept, including the site plan, site analysis and local land use map, floor plan, elevations drawn to scale and "thumbnail" perspectives. The elevations shall have the proposed exterior materials noted. Furnish a written description of the structural and mechanical systems contemplated. Update estimate prepared under 1:A(3) above and provide a critical analysis of the ratio of net-to-gross areas.

(3) The Architect-Engineer will be required to present his concepts to the Regional Advisory Panel on Architectural Services, Region 8, GSA and Bureau of the Mint, on a mutually agreed date in Denver, Colorado.

(4) Services as required under Paragraph Number 21.d of Special VE Services as shown in Figure 7-21.4 of GSA Handbook, Value Engineering, PBS P 8000.1.

C. Prepare and Furnish TENTATIVE DESIGN SERVICES

(1) Four (4) copies of paper reproducibles at working drawing scale (sepias) of Tentative Drawings (Architectural, Civil, Structural, Mechanical and Electrical) for the facilities including building(s) and site development, which shall include all permanent interior walls and partitions including location of primary and phantom corridors. A tentative design submittal will not be required for Production Process Equipment, as periodic on-board review will be accomplished by the Government.

(2) Four (4) copies of the Project Directive and a quantity cost estimate by trades including unit prices per Government approved format.

(3) An analysis of special foundations, if soil borings so indicate, to be submitted at least two weeks prior to submission of Tentative Drawings. Four (4) copies.

(4) An analysis of the structural framing for the building showing the cost of types of framing and a recommendation of the type to be used for this project, to be submitted at least two weeks prior to submission of Tentative Drawings. Four (4) copies.

(5) Heat/Cool Life Cycle cost analysis. Four (4) copies.

(6) Services as required under Paragraph Number 21.d of Special VE Services as shown in Figure 7-21.4 of GSA Handbook, Value Engineering, PBS P 8000.1.

(7) A final critical analysis of the ratio of net-to-gross areas. Four (4) copies.

(8) Two rendered perspectives, after approval of Tentative Drawings, in color (two views) and one model of building(s) required under this contract at $1/8" = 1'-0"$ minimum and of a quality to be suitable for public display. Type of rendering and name of delineator shall be approved by the Project Director.

(9) One color negative (5 x 7) of each rendering and 4 color prints (10 x 14) of each negative.

(10) Four (4) copies each of the following:

- a. Structural calculations to date;
- b. Airconditioning calculations to date;
- c. Economic Fuel Analysis;
- d. Lighting calculations;
- e. Electrical Load calculations to date;
- f. Utility Companies' statement of availability of service;
- g. Fire safety system analysis;
- h. Written analysis of building code requirements;
- i. Environmental Impact Considerations; and
- j. Anti-pollution studies.

(11) Outline listing of known specification sections to be used.

(12) A letter from the power company which states its specific requirements, recommendations, approximate service voltage gradient, and the available interrupting capacity at the building site. In addition, the power company should include a one-line diagram showing substations and medium voltage feeder for buildings which require primary service, together with appropriate excerpts from the dispatcher's log of outages that occurred in the previous year.

D. Prepare and Furnish PRODUCTION PROCESS PROCUREMENT DOCUMENTS

(1) At the option of the Government, notice of election which shall be given within six weeks after approval of the Production Process Equipment Design Concept, provided; however, that such date may be extended by mutual agreement by parties hereto, the Architect-Engineer shall provide the services described herein for the production process equipment procurement bid documents.

(2) Separate bid packages shall be prepared for each phased production process procurement, subsequently determined necessary by the Project Director. Special consideration shall be given to early completion of the bid documents for equipment which will require long lead-time manufacturing periods. Specific dates for individual bid packages will be determined by the computer produced schedules prepared, coordinated and updated by the Construction Manager.

(3) Working Drawings - three (3) sets of paper reproducibles (sepias) for use in review. After approval, provide one complete set of plastic reproducibles of the Final Working Drawings. The Diazo, polyester type reproducible prints will be 0.003 inch thick, with matte finish on one side, (full size). All sheets shall have a graphic scale(s) and 5/32 inch minium height lettering and numbering. Sheet size shall be 30" x 42". Minimum scale of all drawings shall be 1/8" = 1'-0", unless otherwise approved by the Project Director.

(4) Specifications - four (4) direct image copies. After approval, one (1) corrected typed manuscript copy on plain white bond paper, 8" x 10-1/2" in prescribed format.

(5) A detailed final estimate of costs for each of the production process equipment procurement packages.

(6) A schedule of supplier's or manufacturer's Approvals and Tests, listing all shop drawings, samples, materials and equipment to be submitted and all tests to be performed, in accordance with the contract specifications.

(7) Furnish a list including manufacturer's name, make, model number size, etc. of all production process equipment upon which the design is based. Four (4) copies.

(8) Completed design calculations (as applicable) - four (4) direct image copies.

(9). Transmittal statement, signed by the Architect-Engineer and his consultants certifying the completeness of each phased submission, shall be submitted.

(10) Services as required under Paragraph Number 21.d of Special VE Services as shown in Figure 7-21.4 of GSA Handbook, Value Engineering, PBS P 8000.1.

E. Prepare and Furnish WORKING DRAWING SERVICES

(1) At the option of the Government, notice of election of which shall be given within ten months from date of this contract, provided; however, that such date may be extended by mutual agreement by parties hereto, the Architect-Engineer shall provide the services described herein for the production process equipment installation documents.

(2) At the option of the Government, notice of election of which shall be given within 36 weeks after approval of the Tentative Services, provided; however, that such date may be extended by mutual agreement by parties hereto, the Architect-Engineer shall provide the following services (architectural, structural, civil, landscaping, mechanical and electrical) for each phased construction bid package for the building(s) - site facilities subsequently determined necessary by the Project Director.

(3) Working Drawings - three (3) sets of paper reproducibles (sepias) for use in review. After approval, provide one complete set of plastic reproducibles of the Final Working Drawings. The Diazo, polyester type reproducible prints will be 0.003 inch thick, with matte finish on one side, (full size). All sheets shall have a graphic scale(s) and 5/32 inch minimum height lettering and numbering. Sheet size shall be 30" x 42". Minimum scale of all drawings shall be 1/8" = 1'-0", unless otherwise approved by the Project Director.

(4) Specifications - four (4) direct image copies. After approval, one (1) corrected typed manuscript copy on plain white bond paper, 8" x 10-1/2" in prescribed format.

(5) A detailed final estimate of costs in the same format as 1.C(2) above, as applicable.

(6) A detailed final estimate of costs for each of the production process equipment installation packages as required.

(7) A schedule of Construction Contractor's Approvals and Tests, listing all shop drawings, samples, materials, fixtures, equipment, plant materials and color schedules to be submitted and all tests to be performed by the Construction Contractor in accordance with the contract specifications.

(8) Furnish a list including manufacturer's name, make, model number size, etc. of all building facility equipment upon which the design is based. Four (4) copies.

(9) Completed design calculations (as applicable) - four (4) direct image copies.

(10) Transmittal statement, signed by the Architect-Engineer and his engineers (structural, civil, mechanical and electrical) certifying the completeness of each phased submission, shall be submitted.

(11) Services as required under Paragraph Number 21.d of Special VE Services as shown in Figure 7-21.4 of GSA Handbook, Value Engineering, PBS P 8000.1.

F. POST CONSTRUCTION CONTRACT AWARD SERVICES

At the option of the Government, notice of election of which shall be given within 24 months from date of this contract, provided; however, that such date may be extended by mutual agreement by the parties hereto, the Architect-Engineer shall perform the following additional professional services:

- (1) Perform the following post-construction contract award services:
 - a. Attend the Pre-Construction Conferences;
 - b. Prepare any additional explanatory drawings and documents required;
 - c. Check and approve or reject architectural and structural shop drawings;
 - d. Review and approve or reject architectural material samples;
 - e. Check and approve or reject mechanical and electrical shop drawings, equipment lists and data;

f. Check, review and make recommendations to the Government as to the approval or rejection of Production Process Equipment submittals. Final approval of Production Process Equipment will be the Government's responsibility.

g. Shortly after the start of construction, prepare and furnish two complete sets of 1/8" scale plastic reproducible (.003 inch) Skeleton Floor Plans for all floors, including basements. The skeleton plan features, floorload areas, and "phantom" secondary corridors (dotted in);

h. Services as required under Paragraph Number 21.d of Special VE Services as shown in Figure 7-21.4 of GSA Handbook, Value Engineering, PBS P 8000.1.

(2) Prepare and furnish three (3) copies of complete operating and maintenance manuals for all facility mechanical and electrical equipment. The manuals shall contain the following:

- a. Description of design intent and consideration;
- b. Word description of the systems;
- c. General operating instructions, including copies of posted specific instructions;
- d. Maintenance instructions, followed by tabulated manufacturers' descriptive literature, shop drawings, performance curves and rating data, spare parts lists and manufacturers' maintenance manuals.

(3) Prepare and furnish three (3) copies of complete operating and maintenance manuals for all production process equipment. The manuals shall contain the following:

- a. Description of design intent and consideration;
- b. Word description of the systems;
- c. Specific operating instructions, including copies of posted specific instructions; safety instructions, etc.;

- d. Maintenance instructions, followed by tabulated manufacturers' descriptive literature, shop drawings, performance curves and rating data, spare parts lists and manufacturers' maintenance manuals.

G. CONSTRUCTION SUPERVISION SERVICES

At the option of the Government, notice of election of which shall be given within 24 months from the date of this contract, provided; however, that such date may be extended by mutual agreement by the parties hereto, the Architect-Engineer shall perform the following additional services:

(1) Monthly visits to the site by a principal of the firm and a written report to the Project Director after each visit of major construction problems with recommendations for remedial action. These services shall be performed for a 24-month period commencing approximately two months after building construction start.

(2) Upon the request of the Project Director or his representative, certain architectural, structural, mechanical, electrical and landscape consultation services.

2. SCHEDULE OF SUBMISSIONS

The Architect-Engineer shall complete the services required under Clause 1 and submit the drawings and documents to the Contracting Officer with the following schedule, exclusive of Government review time:

- A. PROGRAMMING SERVICES as required by Clause 1A
..... 4 weeks
after Notice to Proceed.
- B. DESIGN CONCEPT SERVICES as required by Clause 1B(1)
..... 16 weeks
after Programming Services approval.
- C. DESIGN CONCEPT SERVICES as required by Clause 1B(2)
..... 4 weeks
after Design Concept Services required by Clause 1B(1) is approved.
- D. TENTATIVE DESIGN SERVICES as required by Clause 1C
..... 12 weeks
after Design Concept Services required by Clause 1B(2) is approved.

- E. PRODUCTION PROCESS PROCUREMENT DOCUMENTS required by Clause 1D 4 weeks after the option under Clause 1D(1) is exercised.
- F. WORKING DRAWINGS SERVICES as required by Clause 1E(1) 26 weeks after the option under Clause 1E(1) is exercised.
- G. WORKING DRAWING SERVICES as required by Clause 1E(2) 36 weeks after the option under Clause 1E(2) is exercised.
- H. POST CONSTRUCTION CONTRACT AWARD SERVICES as required by Clause 1F In a timely manner as directed by the Project Director as the project progresses.
- I. PROGRESS PRINTS AT ANY DESIGN PHASE 1 day upon Project Director's request.
- J. The completion date may be extended in the event performance is delayed due to causes beyond the control and without fault or negligence of the Architect-Engineer as determined by the Project Director.
- K. Specific dates for individual submittals will be determined by the computer produced schedules prepared, coordinated and updated by the Construction Manager.
- L. The above scheduled submissions shall be delivered to the Project Director at the Design and Construction Division office, Building 41, Denver Federal Center, Denver, Colorado on the date scheduled prior to 12 o'clock noon.
- M. Major Milestone dates for this project:
- | | |
|--|-------------------|
| Commencement of Process Equipment Procurement | September 1, 1974 |
| Commencement of Phased Construction | March 1, 1975 |
| Completion of Phased Construction Documents | August 1, 1975 |
| Commencement of Process Equipment Installation | January 1, 1977 |
| Completion of Construction and Occupancy by the Bureau of the Mint | January 1, 1979 |
| Fully Operational Facility | July 1, 1979 |

It is understood that the above dates represent minimum acceptable performance and that all parties will take appropriate measures to reduce the total project time.

N. All submittals except production process design submittals will be simultaneously reviewed by the Construction Manager, GSA and Bureau of the Mint and will be returned through GSA to the Architect-Engineer. The Construction Manager will not be involved in the technical review of the production process equipment design.

3. STANDARD SERVICES

A. The Architect-Engineer shall:

- (1) Furnish progress reports of his work monthly.
- (2) Prepay shipping charges on all charts, sketches, drawings and documents he sends to the Project Director and the Bureau of the Mint.
- (3) The Architect-Engineer will not, during or after performance of this agreement, disseminate any information outside its organization regarding this project without prior written approval of the Government.
- (4) Architect-Engineer will attend all conferences called by the Project Director.
- (5) Furnish services as required under Paragraph Number 21.d of Special VE Services as shown in Figure 7-21.4 of GSA Handbook, Value Engineering, PBS P 8000.1.
- (6) Work closely with and cooperate with the Construction Manager during the design and construction of this project.
- (7) Furnish, throughout the project construction/equipment installation period, engineering advice and assistance to the Contracting Officer to resolve ambiguities and conflicts and to assure completion of the facility in accordance with the design.
- (8) The Architect-Engineer shall maintain a project file of all correspondence pertinent to the contract. A/E shall keep records of all conferences, reviews and substantive telephone conversations and provide written confirmation of each to the Contracting Officer or his designee, as requested.

(9) All estimates of cost shall be transmitted to the Contracting Officer in envelopes stamped "FOR OFFICIAL USE ONLY," as furnished by the Government.

(10) Each Request for Payment for Services Performed shall be accompanied by a GANT chart showing the status of each major segment of the work.

B. The Government will furnish:

(1) Public Buildings Service handbooks, design data, standard details, specification forms, boundary and topographic survey drawing of the site and other information.

(2) General Design Criteria prepared by Bureau of the Mint.

(3) Project Description and Estimated Construction Cost Estimate.

(4) Value Engineering Workbooks, Executive Briefs, and all other referenced forms for the information and use of the Architect-Engineer as necessary.

(5) Preliminary soil test reports dated March 23, 1972 and May 8, 1972.

(6) Final Environmental Impact Statement, dated February 2, 1973. Site Agreement between GSA and City of Denver, dated May 24, 1973 with site and utility drawings (Schedules A and C-1 through C-5, and D, 7 sheets) and Metes and Bounds Description (Schedule B, 4 sheets).

(7) Project Directive Forms GSA 123 A through M.

(8) Sample of Construction Manager Contract.

(9) Site Agreement dated May 23, 1973 between the City of Denver and the Federal Government.

C. The Government will:

(1) Review all material submitted by the Architect-Engineer.

(2) Confer with and obtain approval of all agencies having an interest in the project.

(3) Duplicate the approved Final Working Drawings and specifications.

(4) Obtain bids, award contracts and administer construction of the project.

(5) Contract for the services of a Construction Manager who will work with the Public Buildings Service and the Architect-Engineer from the beginning of design through construction completion. He will furnish the Architect-Engineer with information and recommendations on construction technology and market conditions to insure that the building design stays within the budget, control scheduling of design and construction, manage the procurement effort, superintend and inspect the construction of the building, and provide a wide range of other related services as required by his contract.

4. HANDBOOKS

The Architect-Engineer warrants that he has read the General Services Administration Handbook entitled Instructions to Contract Architect-Engineers dated May 6, 1968 and any revisions thereto in effect on the date of this contract. This Handbook, as well as the following, are incorporated by reference and made a part of this contract.

CRITERIA for a FEDERAL OFFICE BUILDING
PBS P 3425.8 dated November 3, 1971
Change No. 1 dated December 11, 1972

BUILDING FIRESAFETY CRITERIA
PBS P 5920.9 dated July 27, 1965 and
Change No. 1 dated February 8, 1971
Change No. 2 dated April 27, 1972

VALUE ENGINEERING (PBS P 8000.1) dated
January 12, 1972
Change No. 1 dated March 2, 1973

Index of GSA technical criteria for use in PBS construction program.

5. FEE AND PAYMENT

A. The Government shall pay the Architect-Engineer a fixed fee of \$ _____ which shall constitute full compensation for all services and material outlined

in Clauses 1 (except those covered by options) and 6. The fee shall be paid as follows and each installment or portion thereof shall be in full and final settlement for all work performed thereunder.

(1) \$ _____ when all the PROGRAMMING SERVICES required under Clause 1.A are complete and approved by the Government.

(2) \$ _____ when all the DESIGN CONCEPT SERVICES required under Clause 1.B(1) are complete and approved by the Government.

(3) \$ _____ when all the DESIGN CONCEPT SERVICES required under Clause 1.B(2) are complete and approved by the Government.

(4) \$ _____ when all the TENTATIVE DESIGN SERVICES required under Clause 1.C are complete and approved by the Government.

(5) Prior to the final payment under this Clause 5.A, the Architect-Engineer shall furnish the Government with a release of all claims as the Architect-Engineer may except. He shall describe and state the amount of each excepted claim.

B. If the Government exercises the option provided in Clause 1.D, the Architect-Engineer will be paid an additional fixed fee of \$ _____ which shall constitute full compensation for all services and material outlined in Clause 1.D.

(1) The fee shall be paid in lump sum when all work required under Clause 1.D is complete and approved.

(2) Prior to final payment under this Clause 5.B, the Architect-Engineer shall furnish the Government with a release of all claims against the Government under this portion of this contract, other than such claims as the Architect-Engineer may except. He shall describe and state the amount of each excepted claim.

C. If the Government exercises the option provided in Clause 1.E(1), the Architect-Engineer will be paid an additional fixed fee of \$ _____ which shall constitute full compensation for all services and material outlined in Clauses 1.E(1), (3), (4), (6), (7), (9), (10) and (11). The fee shall be paid as follows and each installment or portion thereof shall be in full and final settlement for all work performed thereunder.

(1) \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(1) are 50% complete.

(2) \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(1) are 100% complete..

(3) Prior to the final payment under this Clause 5.C, the Architect-Engineer shall furnish the Government with a release of all claims against the Government under this portion of the contract, other than such claims as the Architect-Engineer may except. He shall describe and state the amount of each excepted claim.

D. If the Government exercises the option provided in Clause 1.E(2), the Architect-Engineer will be paid an additional fixed fee of \$ _____ which shall constitute full compensation for all services and material outlined in Clauses 1.E(2), (3), (4), (5), (7), (8), (9), (10) and (11). The fee shall be paid as follows and each installment or portion thereof shall be in full and final settlement for all work performed thereunder.

(1) \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(2) are 50% complete.

(2) \$ _____ when the WORKING DRAWING SERVICES required under Clause 1.E(2) are 100% complete.

(3) Prior to the final payment under this Clause 5.D, the Architect-Engineer shall furnish the Government with a release of all claims against the Government under this portion of the contract, other than such claims as the Architect-Engineer may except. He shall describe and state the amount of each excepted claim.

E. If the Government exercises the option provided in Clause 1.F, the Architect-Engineer will be paid an additional fixed fee of \$ _____, which shall constitute full compensation for all services and material outlined in Clauses 1.F and 6. The fee shall be as follows and each installment or portion thereof shall be in full and final settlement for all work performed thereunder.

(1) \$ _____ when the POST CONSTRUCTION SERVICES required by Clause 1.F(1) are approved.

(2) \$ _____ when the POST CONSTRUCTION SERVICES required by Clause 1.F(2) are approved.

(3) \$ _____ when the POST CONSTRUCTION SERVICES required by Clause 1.F(3) are approved.

(4) Prior to the final payment under this Clause 5.E the Architect-Engineer shall furnish the Government with a release of all claims against the Government under this portion of the contract, other than such claims as the Architect-Engineer may except. He shall describe and state the amount of each excepted claim.

(5) The Architect-Engineer shall have no duties or responsibilities in connection with any furniture or furnishings that are supplied and installed by the Government, and shall receive no compensation on account thereof.

F. If the Government exercises the option provided in Clause 1.G, the Architect-Engineer will be paid an additional fixed fee of \$ _____, which shall constitute full compensation for all services and material outlined in Clauses 1.G and 6. The fee shall be paid as follows and each installment or portion thereof shall be in full and final settlement for all work performed thereunder.

(1) \$ _____ each month for a maximum of 24 months. Payment to be made after the services outlined under Clause 1.G(1) are approved.

(2) If construction is completed in less than a 24 month period or during the 24th month, the final payment shall consist of the payment due for the month in which the construction is actually completed.

(3) If construction of the project extends beyond a 24 month period, supervision services required by Clause 1.G(1) may be extended at the option of the Government for month-to-month periods not to exceed six months, and payment therefor shall be prorated at rate of \$ _____ per month.

(4) The Government shall pay the Architect-Engineer for services provided under Clause 1.G(2) at the hourly rate described below:

Principal:	\$ _____/hour
Project Architect:	\$ _____/hour
Structural Engineer:	\$ _____/hour
Electrical Engineer:	\$ _____/hour
Landscape Architect:	\$ _____/hour
Civil Engineer:	\$ _____/hour
Mechanical Engineer:	\$ _____/hour

The total cost not to exceed \$ _____, which shall constitute full compensation for all services and material outlined under Clause 1.G(2). The fee shall be in full and final settlement for all work performed thereunder.

a. Government shall pay the Architect-Engineer, at the end of each month, the amount of the invoice after the services outlined under Clause 1.G(2) have been furnished.

(5) Prior to the final payment under this Clause 5.F the Architect-Engineer shall furnish the Government with a release of all claims against the Government under this portion of the contract, other than such claims as the Architect-Engineer may except. He shall describe and state the amount of each excepted claim.

6. TRAVEL

All travel required to be performed in connection with the services to be rendered under this contract shall be without additional expense to the Government.

7. SURVEY AND SUBSOIL INFORMATION

If survey or subsoil information is required, the Contracting Officer may direct the Architect-Engineer in writing to obtain it. For this work the Government will pay the Architect-Engineer the net cost thereof. The preparation of drawings and/or specifications necessary for obtaining survey or subsoil information, and any other soils engineering shall be at no additional expense to the Government.

8. UTILIZATION OF SMALL BUSINESS CONCERNS

(a) It is the policy of the Government as declared by the Congress that a fair proportion of the purchases and contracts for supplies and services for the Government be placed with small business concerns.

(b) The Architect-Engineer agrees to accomplish the maximum amount of subcontracting to small business concerns that the Architect-Engineer finds to be consistent with the efficient performance of this contract.

9. CERTIFICATION OF NONSEGREGATED FACILITIES

The Certification of Nonsegregated Facilities Clause set forth in GSA Form 1411 is incorporated herein by reference.

10. SUSPENSION OF WORK

(a) The Contracting Officer may order the Architect-Engineer in writing to suspend all or any part of the work for such period of time as he may determine to be appropriate for the convenience of the Government.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended or delayed by an act of the Contracting Officer in the administration of this contract, or by his failure to act within the time specified in this contract (or if no time is specified, within a reasonable time), an adjustment shall be made for any increase in cost of performance of this contract

(See reverse)

(excluding profit) necessarily caused by such unreasonable suspension or delay, and the contract modified in writing accordingly.

However, no adjustment shall be made under this clause for any suspension or delay to the extent (1) that performance would have been suspended or delayed by any other cause, including the fault or negligence of the Architect-Engineer or (2) for which an equitable adjustment is provided for or excluded under any other provision of this contract.

(c) No claim under this clause shall be allowed (1) for any costs incurred more than 20 days before the Architect-Engineer shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of such suspension or delay, but not later than the date of final payment. No part of any claim based on the provisions of this clause shall be allowed if not supported by adequate evidence showing that the cost would not have been incurred but for a delay within the provisions of this clause.

11. EXAMINATION OF RECORDS BY GSA

(a) The Architect-Engineer agrees that the Administrator of General Services or any of his duly authorized representatives shall, until the expiration of three years after final payment under this contract, or of the time periods for the particular records specified in Part 1-20 of the Federal Procurement Regulations (41 CFR Part 1-20), whichever expires earlier, have access to and the right to examine any books, documents, papers and records of the Architect-Engineer involving transactions related to this contract or compliance with any clauses thereunder.

(b) The Architect-Engineer further agrees to include in all his subcontracts hereunder a provision to the effect that the subcontractor agrees that the Administrator of General Services or any of his duly authorized representatives shall, until the expiration of three years after final payment under the subcontract, or of the time periods for the particular records specified in Part 1-20 of the Federal Procurement Regulations (41 CFR Part 1-20), whichever expires earlier, have access to and the right to examine any books, documents, papers, and records of such subcontractor, involving transactions related to the subcontract or compliance with any clauses thereunder. The term "subcontract" as used in this clause excludes (1) purchase orders not exceeding \$2,500 and (2) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

12. CONSTRUCTION COST LIMITATION; REVISIONS

(a) The Architect-Engineer shall furnish drawings and specifications for a construction contract in an amount not to exceed that specified in the Project Description and Estimate of Cost (including any amendment thereof) furnished by the Government in accordance with the provisions of this contract, subject to the provisions of this clause.

(b) After bids or offers on the construction contract for this project are opened, the Government-furnished estimate of cost (including any amendment thereof) shall be increased by a percentage representing the increase in the level of building construction costs during the period between the date of the estimate referenced above and the date bids or offers on the construction contract were opened. The percentage of increase shall be determined by averaging building construction cost indices for that period as published by the Engineering News-Record Building Cost Index, the Associated General Contractors of America Construction Cost Index and E. H. Boeckh & Associates.

(c) If the lowest acceptable bid or offer exceeds by more than five percent the Government-furnished cost estimate, as adjusted in accordance with paragraph (b) of this clause, the Architect-Engineer shall, at no cost to the Government, revise the drawings and specifications as directed by the Contracting Officer and to the extent that, in the Contracting Officer's judgment, the revisions will reduce construction costs to an amount not greater than the Government-furnished estimate of cost (as amended, if applicable) adjusted in accordance with paragraph (b) of this clause, plus five percent. The Architect-Engineer shall commence such revisions promptly upon receipt of notice and directions from the Contracting Officer and shall complete the revisions within the time determined by the Contracting Officer to be commensurate with the extent of the revisions required.

(d) In the event the Architect-Engineer fails or refuses to furnish revisions as may be required in accordance with this clause, he shall be deemed to have failed to perform the contract. At the sole option of the Government, he shall either reimburse the Government all payments received to date under this contract or reimburse the Government the cost of having the revisions accomplished by other means.

13. CERTIFICATE OF CURRENT COST OR PRICING DATA

This is to certify that, to the best of my knowledge and belief, cost or pricing data* submitted in writing, or specifically identified in writing if actual submission of the data is impracticable (see § 1-3.807-3(h) (2)), to the Contracting Officer or his representative in support of _____, are accurate, complete, and current as of _____.

(date)

Firm _____

Name _____

Title _____

(Date of execution)

*For definition of "cost or pricing data," see FPR § 1-3.807-3.

**Describe the proposal, quotation, request for price adjustments, or other submission involved, giving appropriate identifying number (e.g., RFP No. _____).

***This date shall be the date when the price negotiations were concluded and the contract price was agreed to. The responsibility of the Architect-Engineer is not limited by the personal knowledge of the Architect-Engineer's negotiator if the Architect-Engineer had information reasonably available (see § 1-3.807-5 (a)) at the time of agreement, showing that the negotiated price is not based on accurate, complete, and current data.

****This date should be as close as practicable to the date when the price negotiations were concluded and the contract price was agreed upon.

*****Signature should be affixed prior to executing the contract.

14. AUDIT

(a) For purposes of verifying that certified cost or pricing data submitted, in conjunction with the negotiation of this contract or any contract change or other modification involving an amount in excess of \$100,000, was accurate, complete, and current, the Contracting Officer, or his authorized representatives, shall, until the expiration of 3 years from the date of final payment under this contract or of the time periods for the particular records specified in Part 1-20 of the Federal Procurement Regulations (41 CFR Part 1-20), whichever expires earlier, have the right to examine those books, records, documents, papers, and other supporting data which involve transactions related to this contract or which will permit adequate evaluation of the cost or pricing data submitted, along with the computations and projections used therein.

(b) The Architect-Engineer agrees to insert this clause, including this paragraph "(b)" in all subcontracts hereunder which when entered

(See reverse)

into exceed \$100,000, unless the price is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation. When so inserted, changes shall be made to designate the higher-tier subcontractor at the level involved as the contracting and certifying party; to add "of the Government prime contract" after "Contracting Officer"; and to add, at the end of "(a)" above, the words, "provided that, in the case of any contract change or modification, such change or modification results from a change or other modification to the Government prime contract." In each such excepted subcontract hereunder which when entered into exceeds \$100,000, the Architect-Engineer shall insert the following clause:

"Audit-Price Adjustments

"1. This clause shall become operative only with respect to any change or other modification of this contract which involves a price adjustment in excess of \$100,000 unless the price adjustment is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation: Provided, that such change or other modification to this contract results from a change or other modification to the Government prime contract.

"2. For purposes of verifying that certified cost or pricing data submitted in conjunction with such a contract change or modification was accurate, complete, and current, the Contracting Officer of the Government prime contract, or his authorized representatives, shall, until the expiration of 3 years from the date of final payment under this contract, or of the time periods for the particular records specified in Part 1-20 of the Federal Procurement Regulations (41 CFR Part 1-20), whichever expires earlier, have the right to examine those books, records, documents, papers, and other supporting data which involve transactions related to this contract or which will permit adequate evaluation of the cost or pricing data submitted, along with the computations and projections used therein.

"3. The subcontractor agrees to insert this clause, including this paragraph "3", in all subcontracts hereunder which when entered into exceed \$100,000."

15. PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA

(a) If the Contracting Officer determines that any price, including profit or fee, negotiated in connection with this contract or any cost reimbursable under this contract was increased by any significant sums because the Architect-Engineer, or any subcontractor pursuant to the clause of this contract entitled "Subcontractor Cost or Pricing Data" or

"Subcontractor Cost or Pricing Data - Price Adjustments," or any sub-contract clause therein required, furnished incomplete or inaccurate cost or pricing data or data not current as certified in his Contractor's Certificate of Current Cost or Pricing Data, then such price or cost shall be reduced accordingly and the contract shall be modified in writing to reflect such reduction.

(b) Failure to agree on a reduction shall be a dispute concerning a question of fact within the meaning of the "Disputes" clause of this contract.

(NOTE: Since the contract is subject to reduction under this clause by reason of defective cost or pricing data submitted in connection with certain subcontracts, it is expected that the Architect-Engineer may wish to include a clause in each such subcontract requiring the subcontractor to appropriately indemnify the Architect-Engineer. It is also expected that any subcontractor subject to such indemnification will generally require substantially similar indemnification for defective cost or pricing data required to be submitted by his lower tier subcontractors.)

16. SUBCONTRACTOR COST AND PRICING DATA

(a) The Architect-Engineer shall require subcontractors hereunder to submit in writing cost or pricing data under the following circumstances:

(1) Prior to award of any cost-reimbursement type, time and material, labor-hour, incentive, or price redeterminable subcontract, the price of which is expected to exceed \$100,000; and

(2) Prior to the award of any other subcontract, the price of which is expected to exceed \$100,000 or to the pricing of any subcontract change or other modification for which the price adjustment is expected to exceed \$100,000, where the price or price adjustment is not based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

(b) The Architect-Engineer shall require subcontractors to certify, in substantially the same form as that used in the certificate by the Architect-Engineer to the Government, that, to the best of their knowledge and belief, the cost and pricing data submitted under "(a)" above are accurate, complete, and current as of the date of the execution, which date shall be as close as possible to the date of agreement on the negotiated price of the subcontract or subcontract change or modification.

(c) The Architect-Engineer shall insert the substance of this clause including this paragraph "(c)" in each of his cost-reimbursement type, time and material, labor-hour, price redeterminable, or incentive subcontracts hereunder, and in any other subcontract hereunder which exceeds \$100,000 unless the price thereof is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

(See reverse)

In each such excepted subcontract hereunder which exceeds \$100,000, the Architect-Engineer shall insert the substance of the following clause:

"Subcontractor Cost and Pricing Data - Price Adjustments

"1. Paragraphs "2" and "3" of this clause shall become operative only with respect to any change or other modification made pursuant to one or more provisions of this contract which involves a price adjustment in excess of \$100,000. The requirements of this clause shall be limited to such price adjustments.

"2. The Contractor shall require subcontractors hereunder to submit cost or pricing data under the following circumstances:

"(a) Prior to award of any cost-reimbursement type, time and material, labor-hour, incentive, or price redeterminable subcontract, the price of which is expected to exceed \$100,000; and

"(b) Prior to award of any other subcontract, the price of which is expected to exceed \$100,000, or to the pricing of any subcontract change or other modification for which the price adjustment is expected to exceed \$100,000, where the price or price adjustment is not based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

"3. The Contractor shall require subcontractors to certify, in substantially the same form as that used in the Certificate by the Architect-Engineer to the Government, that, to the best of their knowledge and belief, the cost and pricing data submitted under "2" above are accurate, complete, and current as of the date of the execution, which date shall be as close as possible to the date of agreement on the negotiated price of the contract modification.

"4. The Contractor shall insert the substance of this clause, including this paragraph "4" in each subcontract hereunder which exceeds \$100,000.

GSA Form 1495
(Continuation)

SPECIAL PROVISIONS
(Architect-Engineer Contract)

The following clause is applicable to all contracts in amounts which may exceed \$5,000 except (1) contracts which, including all subcontracts thereunder, are to be performed entirely outside the United States, its possessions, and Puerto Rico and (2) contracts for service which are personal in nature.

17. UTILIZATION OF MINORITY BUSINESS ENTERPRISES

(1) It is the policy of the Government that minority business enterprises shall have the maximum practicable opportunity to participate in the performance of Government contracts.

(2) The contractor agrees to use his best efforts to carry out this policy in the award of his subcontracts to the fullest extent consistent with the efficient performance of this contract. As used in this contract, the term "minority business enterprise" means a business, at least 50 percent of which is owned by minority group members or, in case of publicly owned businesses, at least 51 percent of the stock of which is owned by minority group members. For the purposes of this definition, minority group members are Negroes, Spanish-speaking American persons, American-Orientals, American-Indians, American-Eskimos, and American Aleuts. Contractors may rely on written representations by subcontractors regarding their status as minority business enterprises in lieu of an independent investigation.

18. COST ACCOUNTING STANDARDS.

a. Unless the Cost Accounting Standards Board has prescribed rules or regulations exempting the Contractor or this contract from standards, rules, and regulations promulgated pursuant to 50 U.S.C. App. 2168 (P.L. 91-379, August 15, 1970), the Contractor, in connection with this contract shall:

(1) By submission of a Disclosure Statement, disclose in writing his cost accounting practices as required by regulations of the Cost Accounting Standards Board. The required disclosures must be made prior to contract award unless the Contracting Officer provides a written notice to the Contractor authorizing postaward submission in accordance with regulations of the Cost Accounting Standards Board. The practices disclosed for this contract shall be the same as the practices currently disclosed and applied on all other contracts and subcontracts being performed by the Contractor and which contain this Cost Accounting Standards clause. If the Contractor has marked the Disclosure Statement to indicate that it contains trades secrets and commercial or financial information which is privileged and confidential, the Disclosure Statement will be protected and will not be released outside of the Government.

(2) Follow consistently the cost accounting practices disclosed pursuant to (1), above, in accumulating and reporting contract performance cost data concerning this contract. If any change in disclosed practices is made for the purposes of any contract or subcontract subject to Cost Accounting Standards Board requirements, the change must be applied prospectively to this contract, and the Disclosure Statement must be amended accordingly. If the contract price or cost allowance of this contract is affected by such changes, adjustment shall be made in accordance with subparagraph a(4) or a(5), below, as appropriate.

(3) Comply with all Cost Accounting Standards in effect on the date of award of this contract or if the Contractor has submitted cost or pricing data, on the date of final agreement on price as shown on the Contractor's signed certificate of current cost or pricing data. The Contractor shall also comply with any Cost Accounting Standard which hereafter becomes applicable to a contract or subcontract of the Contractor. Such compliance shall be required prospectively from the date of applicability to such contract or subcontract.

(4)(A) Agree to an equitable adjustment as provided in the Changes clause of this contract if the contract cost is affected by a Disclosure Statement change which the Contractor is required to make pursuant to (3), above. If the Contractor has not been required to file a Disclosure Statement but is required pursuant to a(3), above, to change an established practice, then an equitable adjustment shall similarly be agreed to.

(B) Negotiate with the Contracting Officer to determine the terms and conditions under which any Disclosure Statement change other than changes under (4)(A), above, may be made. A change to a Disclosure Statement may be proposed by either the Government or the Contractor, provided, however, that no agreement may be made under this provision that will increase costs paid by the United States under this contract.

(5) Agree to an adjustment of the contract price or cost allowance, as appropriate, if he or a subcontractor fails to comply with an applicable Cost Accounting Standard or to follow any practice disclosed pursuant to subparagraphs a(1) and a(2), above, and such failure results in any increased costs paid by the United States. Such adjustment shall provide for recovery of the increased costs to the United States together with interest thereon computed at the rate determined by the Secretary of the Treasury pursuant to P.L. 92-41, 85 Stat. 97, or 7 percent per annum, whichever is less, from the time the payment by the United States was made to the time the adjustment is effected.

b. If the parties fail to agree whether the Contractor or subcontractor has complied with an applicable Cost Accounting Standard, rule, or regulation of the Cost Accounting Standards Board and as to any cost adjustment demanded by the United States, such failure to agree shall be a dispute concerning a question of fact within the meaning of the Disputes clause of this contract.

c. The Contractor shall permit any authorized representatives of the head of the agency, the Cost Accounting Standards Board, or the Comptroller General of the United States to examine and make copies of any documents, papers, or records relating to compliance with the requirements of this clause.

d. The Contractor shall include in all negotiated subcontracts which he enters into the substance of this clause except paragraph (b), and shall require such inclusion in all other subcontracts of any tier, except that this requirement shall apply only to negotiated subcontracts in excess of \$100,000 where the price negotiated is not based on:

(i) Established catalog or market prices of commercial items sold in substantial quantities to the general public; or

(ii) Prices set by law or regulation.

NOTE:

1. Subcontractors shall be required to submit their Disclosure Statements to the Contractor. However, if a subcontractor has previously submitted his Disclosure Statement to a Government Contracting Officer he may satisfy that requirement by certifying to the Contractor the date of such Statement and the address of the Contracting Officer.

2. In any case where a subcontractor determines that the Disclosure Statement information is privileged and confidential and declines to provide it to his Contractor or higher tier subcontractor, the Contractor may authorize direct submission of that subcontractor's Disclosure Statement to the same Government offices to which the Contractor was required to make submission of his Disclosure Statement. Such authorization shall in no way relieve the Contractor of liability as provided in paragraph a(5) of this clause. In view of the foregoing and since the contract may be subject to adjustment under this clause by reason of any failure to comply with rules, regulations, and Standards of the Cost Accounting Standards Board in connection with covered subcontracts, it is expected that the Contractor may wish to include a clause in each such subcontract requiring the subcontractor to appropriately indemnify the Contractor. However, the inclusion of such a clause and the terms thereof are matters for negotiation and agreement between the Contractor and the subcontractor, provided that they do not conflict with the duties of the Contractor under its contract with the Government. It is also expected that any subcontractor subject to such indemnification will generally require substantially similar indemnification to be submitted by his subcontractors.

e. The terms defined in Sec. 331.2 of Part 331 of Title 4, Code of Federal Regulations (4 CFR 331.2) shall have the same meanings herein. As there defined, "negotiated subcontract" means "any subcontract except a firm fixed-price subcontract made by a Contractor or subcontractor after receiving offers from at least two firms not associated with each other or such Contractor or subcontractor, providing (1) the solicitation to all competing firms is identical, (2) price is the only consideration in selecting the subcontractor from among the competing firms solicited, and (3) the lowest offer received in compliance with the solicitation from among those solicited is accepted."

REPRESENTATIONS AND CERTIFICATIONS

(Architect-Engineer Contract)

(For use with SF 252 and 253)

REFERENCE (Enter same No.(s) as on SF 252)

PROJECT NO.

CONTRACT NO.

NAME AND ADDRESS OF ARCHITECT-ENGINEER (No., Street, City, State, and ZIP Code)

DATE OF PROPOSAL

The offeror makes the following representations and certifications as a part of the offer identified above. (Check appropriate boxes)

1. SMALL BUSINESS

He ☐ is, ☐ is not, a small business concern. (For this purpose, a small business concern is a business concern, including its affiliates, which (a) is independently owned and operated, (b) is not dominant in the field of operation in which it is offering on Government contracts, and (c) had average annual receipts for the preceding 3 fiscal years not exceeding \$1,000,000 for Architect-Engineer contracts primarily architectural, and \$5,000,000 for Architect-Engineer contracts primarily engineering. For additional information see governing regulations of the Small Business Administration.)

2. CONTINGENT FEE

(a) He ☐ has, ☐ has not, employed or retained any company or person (other than a full-time bona fide employee working solely for the offeror) to solicit or secure this contract, and (b) he ☐ has, ☐ has not, paid or agreed to pay any company or person (other than a full-time bona fide employee working solely for the offeror) any fee, commission, percentage or brokerage fee, contingent upon or resulting from the award of this contract; and agrees to furnish information relating to (a) and (b) above as requested by the Contracting Officer. (For interpretation of the representation, including the term "bona fide employee," see Code of Federal Regulations, Title 41, Subpart 1-1.5.)

3. TYPE OF ORGANIZATIONHe operates as an ☐ individual, ☐ partnership, ☐ joint venture, ☐ corporation, incorporated in State of**4. INDEPENDENT PRICE DETERMINATION**

(a) By submission of this offer, each offeror certifies, and in the case of a joint offer each party thereto certifies as to his own organization, that in connection with this procurement:

(1) The prices in this offer have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other offeror or with any competitor;

(2) Unless otherwise required by law, the prices which have been quoted in this offer have not been knowingly disclosed by the offeror and will not knowingly be disclosed by the offeror prior to award directly or indirectly to any other offeror or to any competitor; and

(3) No attempt has been made or will be made by the offeror to induce any other person or firm to submit or not to submit an offer for the purpose of restricting competition.

(b) Each person signing this offer certifies that:

(1) He is the person in the offeror's organization responsible within that organization for the decision as to the prices being offered herein and that he has not participated, and will not participate, in any action contrary to (a) (1) through (a) (3) above; or

(2) (i) He is not the person in the offeror's organization responsible within that organization for the decision as to the prices being offered herein but that he has been authorized in writing to act as agent for the persons responsible for such decision in certifying that such persons have not participated, and will not participate, in any action contrary to (a) (1) through (a) (3) above, and as their agent does hereby so certify; and (ii) he has not participated, and will not participate, in any action contrary to (a) (1) through (a) (3) above.

(c) This certification is not applicable to a foreign offeror submitting an offer for a contract which requires performance or delivery outside the United States, its possessions, and Puerto Rico.

(d) An offer will not be considered for award where (a) (1), (a) (3), or (b) above, has been deleted or modified. Where (a) (2) above, has been deleted or modified, the offer will not be considered for award unless the offeror furnishes with the offer a signed statement which sets forth in detail the circumstances of the disclosure and the head of the agency, or his designee, determines that such disclosure was not made for the purpose of restricting competition.

THE FOLLOWING NEED BE CHECKED ONLY IF OFFER EXCEEDS \$10,000 IN AMOUNT.

5. EQUAL OPPORTUNITY

(a) He ☐ has, ☐ has not, participated in a previous contract or subcontract subject to the Equal Opportunity Clause herein, the clause originally contained in Section 301 of Executive Order No. 10925, or the clause contained in Section 201 of Executive Order No. 11114; he ☐ has, ☐ has not filed all required compliance reports; and representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained prior to subcontract awards. (The above representation need not be submitted in connection with contracts or subcontracts which are exempt from the clause.)

(b) The offeror represents that (1) he ☐ has developed and has on file ☐ has not developed and does not have on file at each establishment affirmative action programs as required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2), or

NOTE: Offers must set forth full, accurate, and complete information as required by this invitation for proposal (including attachments). The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

(2) he ☐ has not previously had contracts subject to the written affirmative action program requirement of the rules and regulations of the Secretary of Labor.

6. PARENT COMPANY AND EMPLOYER IDENTIFICATION NUMBER

Each offeror shall furnish the following information by filling in the appropriate blocks:

(a) Is the offeror owned or controlled by a parent company as described below? ☐ Yes ☐ No. (For the purpose of this offer, a parent company is defined as one which either owns or controls the activities and basic business policies of the offeror. To own another company means the parent company must own at least a majority (more than 50 percent) of the voting rights in that company. To control another company, such ownership is not required; if another company is able to formulate, determine, or veto basic business policy decisions of the offeror, such other company is considered the parent company of the offeror. This control may be exercised through the use of dominant minority voting rights, use of proxy voting, contractual arrangements, or otherwise.)

(b) If the answer to (a) above is "Yes," offeror shall insert in the space below the name and main office address of the parent company.

NAME OF PARENT COMPANY	MAIN OFFICE ADDRESS (No., Street, City, State, and ZIP Code)
------------------------	--

(c) Offeror shall insert in the applicable space below, if he has no parent company, his own Employer's Identification Number (E.I. No.) (Federal Social Security Number used on Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941), or, if he has a parent company, the E.I. No. of his parent company.

EMPLOYER IDENTIFICATION NUMBER OF ➡	PARENT COMPANY	OFFEROR
-------------------------------------	----------------	---------

7. CERTIFICATION OF NONSEGREGATED FACILITIES

(Applicable to (1) contracts, (2) subcontracts, and (3) agreements with applicants who are themselves performing federally assisted construction contracts, exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause.)

By the submission of this offer, the offeror, applicant, or subcontractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files; and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATIONS OF NONSEGREGATED FACILITIES

A Certification of Nonsegregated Facilities must be submitted prior to the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

(Name of Firm)

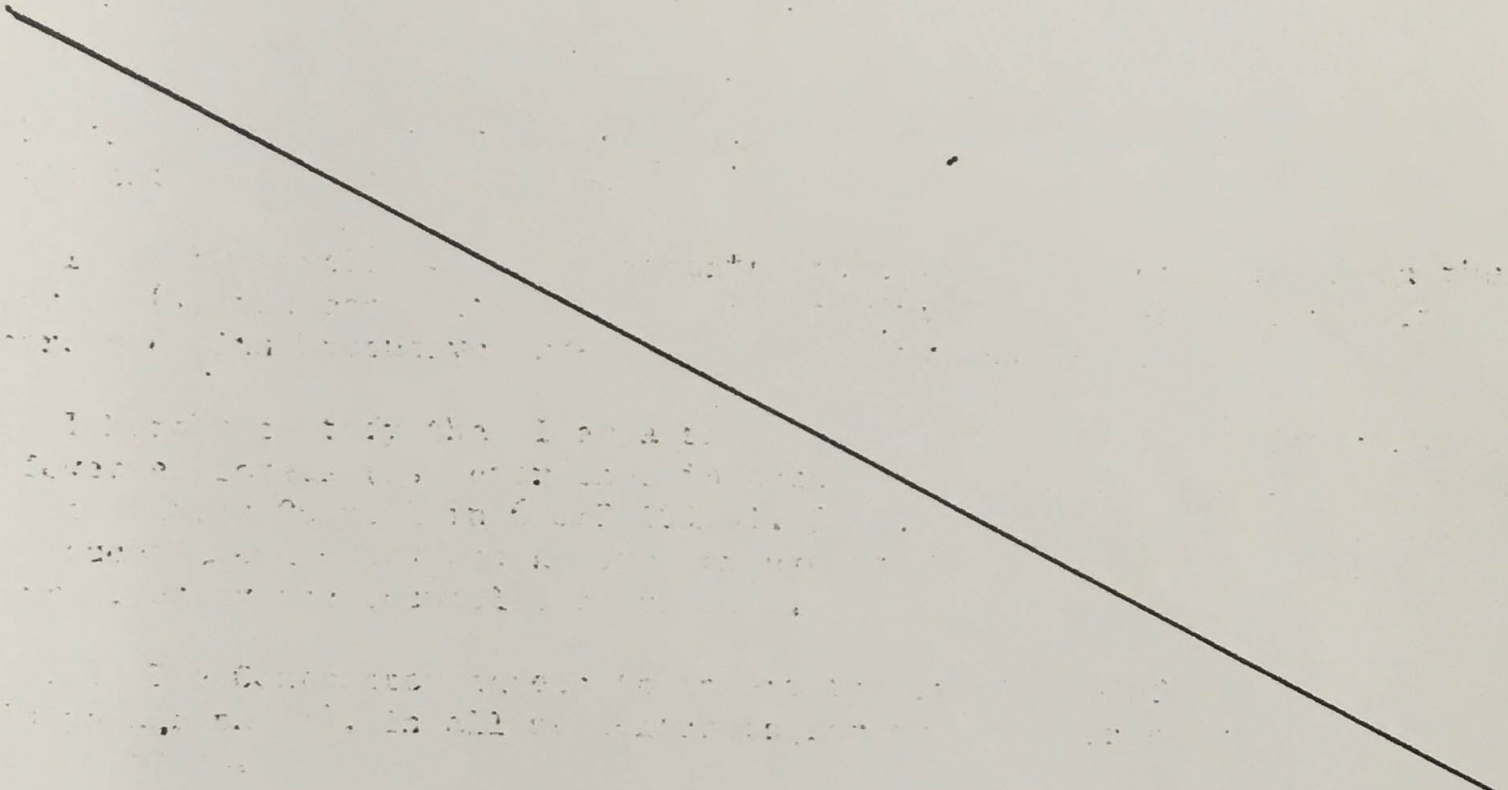
By

(Signature)

(Title)

8. PRICE STABILIZATION CERTIFICATION

The bidder or offeror (Contractor) certifies that he is in compliance with the price stabilization requirements of Executive Order 11723, dated June 13, 1973, and amendments thereof, and the regulations of the Cost of Living Council as set forth in title 6, Code of Federal Regulations, part 140, or any additions or revisions to title 6.



9. NOTICE OF MAXIMUM PERMISSIBLE ESCALATION IN WAGE AND PRICE STANDARDS

Bidders are advised of standards established under Executive Orders 11615, 11627, and 11640 setting maximum permissible percentages of escalation in wage rates and price increases. Such standards call for wage rate increases of no more than 5.5% per annum unless specific exceptions have been granted by the Pay Board. The price standard established by the Price Commission has the objective of holding economywide price increases to 2.5% per annum (3% per annum in the case of small business firms). To achieve this target, firms are allowed to increase prices to reflect allowable costs incurred since the last price increase or since January 1, 1971, whichever was later, and such costs as firms are continuing to incur, adjusted to reflect productivity gains. These price increases may not result in profit margins on sales which exceed the firm's profit margins for the highest 2 of the last 3 fiscal years ending before August 15, 1971. Average productivity gains are estimated to be 3 percent or higher for the economy annually for 1972 and 1973.

10. DISCLOSURE STATEMENT - COST ACCOUNTING
PRACTICES AND CERTIFICATION

Any contract in excess of \$100,000 resulting from this solicitation, except when the price negotiated is based on: (a) Established catalog or market prices of commercial items sold in substantial quantities to the general public, or (b) prices set by law or regulation, shall be subject to the requirements of the Cost Accounting Standards Board. Any offeror submitting a proposal which, if accepted, will result in a contract subject to the requirements of the Cost Accounting Standards Board must, as a condition of contracting, submit a Disclosure Statement as required by regulations of the Board. The Disclosure Statement must be submitted as a part of the offeror's proposal under this solicitation (see 1, below) unless (i) the offeror, together with all divisions, subsidiaries, and affiliates under common control, did not receive net awards of negotiated defense prime contracts during the period July 1, 1970, through June 30, 1971, totaling more than \$30 million (see 2, below), (ii) the offeror has already submitted a Disclosure Statement disclosing the practices used in connection with the pricing of this proposal (see 3, below), or (iii) postaward submission has been authorized by the Contracting Officer.

CAUTION: A practice disclosed in a Disclosure Statement shall not, by virtue of such disclosure, be deemed to be a proper, approved, or agreed to practice for pricing proposals or accumulating and reporting contract performance cost data.

Check the appropriate box below:

[] 1. CERTIFICATE OF CONCURRENT SUBMISSION
OF DISCLOSURE STATEMENTS

The offeror hereby certifies that he has submitted, as a part of his proposal under this solicitation, copies of the Disclosure Statements as follows: (i) Original and one copy to the cognizant Contracting Officer; (ii) one copy to the cognizant contract auditor; and (iii) one copy to the Cost Accounting Standards Board, 441 G Street, NW., Washington, DC 20548.

Date of
Disclosure Statement

Name and Address of Cognizant
Contracting Officers where Filed

The offeror further certifies that practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the Disclosure Statements.

[] 2. CERTIFICATE OF MONETARY EXEMPTION

The offeror hereby certifies that, together with all divisions, subsidiaries, and affiliates under common control, he did not receive net awards of negotiated national defense prime contracts during July 1, 1970, through June 30, 1971, totaling more than \$30 million.

[] 3. CERTIFICATE OF PREVIOUSLY SUBMITTED
DISCLOSURE STATEMENTS

The offeror hereby certifies that the Disclosure Statements were filed, as follows:

Date of
Disclosure Statement

Name and Address of Cognizant
Contracting Officers where Filed

The offeror further certifies that practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in this Disclosure Statement.

September 28, 1973

Project No. 72-124
New Denver Mint

DMJM - Phillips-Reister
Suite 700
910 15th Street
Denver, CO 80202

Gentlemen:

It is my pleasure to report that GSA and Treasury have reached full agreement on the scope and funding of the New Denver Mint project.

In accordance with the design A-E selection notice given your firm on July 10, 1972, we have prepared a proposed draft of a design contract for this project for your consideration. Five copies of this draft contract which includes the Bureau of the Mint's Design Criteria, Standard Provisions, miscellaneous data, handbooks, etc. are enclosed for your use.

It is requested you submit your proposal (five copies) not later than 12:00 noon on Tuesday, October 23, 1973.

We are looking forward to working with your firm toward successful completion of this very challenging project.

Sincerely,

DAVID L. GESS
Project Director
New Denver Mint

5 Attachments

cc:

Joseph Shields
Frank Rhea ✓

Design Proposals

Caenorhynchus Citrus hostellator



THE DEPARTMENT OF THE TREASURY

WASHINGTON, D.C. 20220

OFFICE OF
DIRECTOR OF THE MINT

JUL 10 1975

Superintendent, U. S. Mint, Philadelphia, Pa. 19106
Superintendent, U. S. Mint, Denver, Colo. 80204
Superintendent, U. S. Assay Office, New York, N. Y. 10005
Officer in Charge, U. S. Assay Office, San Francisco, Calif. 94102

In order to assure we maintain all available potential coin production capability until such time the new Denver Mint is operational and long-term production pressures are resolved, the following policy is established.

No production equipment, including auxiliary equipment used in conjunction with production equipment, which may be taken out of service for any reason, is to be declared surplus or otherwise disposed of, without approval from this office. The Office for Production is responsible for providing instructions for retention or disposition in all specific cases of equipment being retired from service.

Sincerely,

Mary Brooks
Director of the Mint

RECEIVED

JUL 14 1975

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

orig: Coining Div.
copy: Procurement Div.
Acct. Div.
Bldg & Mech Div.
✓ Facilities Project Mgr.



Keep Freedom in Your Future With U.S. Savings Bonds



THE DEPARTMENT OF THE TREASURY

WASHINGTON, D.C. 20220

February 13, 1974

OFFICE OF
DIRECTOR OF THE MINT

Mr. S. Kostolnik
General Manager,
Technica Machine Corporation
750-D Nicholas Boulevard
Elk Grove Village, Illinois 60007

Dear Mr. Kostolnik:

Thank you very much for your letter of January 14, 1974, wherein you submitted a quotation pertaining to a TECHNICA horizontal continuous casting machine, type 400 DISNE. Dr. Goldman and I have reviewed this material in detail and are interested in the possibility of eventual use of this, or a similar type machine, in our new Mint.

As you may be aware from recent newspaper articles, there is a possibility that the Bureau of the Mint will convert to pennies made with an aluminum alloy at an early date. We are awaiting Congressional consideration of proposed legislation pertaining to the aluminum pennies. Because of this situation and a potential requirement to expand coin production in the Denver and Philadelphia Mints prior to the new Denver Mint becoming operational, there is a strong possibility that strip production facilities in the existing Denver Mint will be removed to provide additional space for blanking and coining machines. Thus, it is not prudent at this time for us to consider replacing present casting facilities in the Denver Mint.

Also, the aluminum penny possibility has a great impact on our casting operations in the new Denver Mint. Therefore, I would suggest that it is appropriate for you to place your activities relating to casting layouts and equipment in a "hold" status until we have action one way or another by the Congress on the aluminum penny legislation. We remain very interested in the possibility of using horizontal casting machines and will be in contact with you after the Congress has acted.

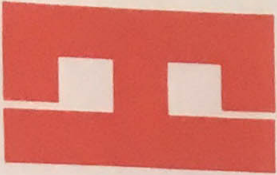
Sincerely,

Frank W. Rhea
Facilities Project Manager
Denver Mint
320 W. Colfax Avenue
Denver, Colorado 80204

cc: F. MacDonald
Dr. Goldman
G. Ambrose

Keep Freedom in Your Future With U.S. Savings Bonds





TECHNICA MACHINE CORPORATION

750-D NICHOLAS BOULEVARD - ELK GROVE VILLAGE, ILLINOIS 60007 - Telephone: 312 437-4585
Telephone: 312 593-0909
Telex: 25-3875

Department of the Treasury
Bureau of the Mint
United States Mint
320 West Colfax Avenue
Denver - Col. 80204
U. S. A.

January 14, 1974.

Attn.: Mr. Frank W. Rhea, Facilities Proj. Manager.

Dear Mr. Rhea:

Please accept Mr. Krall's and my thanks for the opportunity to meet with you and your colleagues in Denver.

I am pleased to submit to you our quotation for the Supply, Supervision of Installation and Commissioning of a TECHNICA horizontal continuous casting machine, type 400 D I S N E , for the processing of copper alloys.

This proposal is for the replacement of your present casting facilities using the Junkers molds.

The offered machine has a casting capacity of 2-strands up to 12" or even 14" wide, or in single strand operation, strip up to 32" wide can be produced. This would make it possible to use the plant later-on in the new casting facilities you are planning. But for the time being it could serve as a pilot plant enabling you to gain valuable experience in the operation of horizontal continuous casting equipment, and its assessment in the light of your future needs.

Concerning your main project, I hope to have a proposal for you in the near future, consisting of a concept that would reduce the casting units to a more manageable level then previously anticipated.

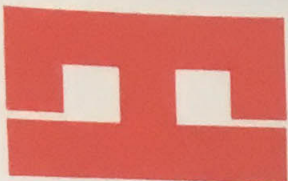
Trusting the enclosed quotation will be of interest, I look forward to be of service to you and remain

sincerely yours,
TECHNICA MACHINE CORPORATION

S. Kostolnik
S. Kostolnik
General Manager.

SK:ak
Encl
CANADIAN OFFICE

EUROPEAN OFFICE



TECHNICA MACHINE CORPORATION

750-D NICHOLAS BOULEVARD - ELK GROVE VILLAGE, ILLINOIS 60007 - Telephone: 312 437-4585
Telephone: 312 593-0909
Telex: 25-3875

Department of the Treasury
Bureau of the Mint
United States Mint
320 West Colfax Avenue
Denver - Col. 80204
U. S. A.

January 14, 1974.

Attn.: Mr. Frank W. Rhea, Facilities Project Manager.

QUOTATION

for the Supply, Supervision of Installation and
Commissioning of a Horizontal Continuous Casting
Machine, TECHNICA design, Type 400 D I S N E.

This plant is equipped with our electronically controlled special drive system. Smallest withdrawal length is 0.004" with approximately 1000 frequencies per minute. It is possible to reciprocate the strands and vary duration of withdrawing motion.

This plant is equipped with a holding furnace prepared to have a channel type induction heating unit of 200 KW capacity bolted onto it. Make or model of the induction unit is the customers choice. Holding capacity of the furnace is 10.000 LBS.

The plant is suitable for the processing of non-ferrous metals, especially copper alloy strip.

The casting capacity is as follows:

Single Strand Operation:
Double Strand Operation:

1-strand up to 32" wide
2-strands " " 14" wide.

..... Continued

CANADIAN OFFICE

210 Westcroft Road - Beaconsfield, Quebec
Phone: 514 695-2727 Telex: 05-821614

EUROPEAN OFFICE

Technica-Guss GmbH - 87 Wuerzburg 7 - Friedrich-Koenig-Strasse 4
West Germany Phone: (0931) 596091 Telex: 68781

The plant consists of the following items:

Scope of Supply

for one
TECHNICA horizontal continuous strip casting line type 400 DISNE.

Items 1.1 to 1.9	Basic Plant		\$ 140.940.00
Items 2.0 to 2.6	Holding Furnace		\$ 40.970.00
Items 3.0 to 3.2	Induction heating by others approx.		\$ 36.000.00
Item 4.0	Coolers (4)		\$ 6.350.00
Item 5.0	Dies (10) for start-up		\$ 2.340.00
Item 6.0	Starter Bars and draw bars		suppl.by client
Item 7.0	Circular cold saw		\$ 46.705.00
Item 9.0	Holding furnace shell (spare)		\$ 9.300.00
Item 10.0	Induction, complete (spare)		<u>\$ 10.000.00</u>
	Cost of equipment		\$ 292.605.00
	Commissioning cost approx.		<u>\$ 17.395.00</u>
	Cost of installed equipment		<u>\$ 310.000.00</u>

=====

The plant consists of the following items:

Item

- 1.1 One drawing unit constructed from heavy steel sections. The drawing unit is completely equipped with 1 special precision drive motor for single strand production of strip up to 32" wide.

It is possible to adapt the withdrawing unit for two strand production. In this case the drive unit will withdraw 2 strands simultaneously.

All bearings and rollers are water cooled. The strands are pressed to the driving rolls by compressed air cylinders. The contact pressure is infinitely variable. By this method a foolproof strand transport is guaranteed.

- 1.2 Special transport or power rolls and matching sets of pressure rolls for moving the strands through the drawing unit.

- 1.3 One dustproof control cabinet for the electronic calibration and setting of the drawing process. Stroke lengths and cycles are infinitely variable. The unit is controlled electronically, using plug-in prints which enable it to be used in conjunction with a process computer. Manual setting is also possible.

Forward as well as reverse movements of the strands with equally infinite calibration is possible. In addition, duration and speed of the withdrawing motion can be varied as well.

- 1.4 One control panel fitted with water flow meters, water temperature indicators and control valves for regulating the cooling water supply. Also fitted are the switches to control the compressed air supply to the drawing unit. If fuel oil is used to preheat the holding furnace, an oil flow meter with solenoid valve is supplied. The whole unit is pre-assembled and need only be connected to the main sources of supply.

Item

1.5 One cooling water connection and distribution unit with quick-lock couplings for flexible water hoses and terminals for the thermometers to control cooling water temperature.
This unit is also pre-assembled and ready for connection with the water supply line, thus cutting down on installation at the site.

1.6 All necessary rolls and rollstands for 2 strand production to support and transport the strands. The rollstands are positioned in front and behind the drawing unit. Each rollstand is easily adjustable in height.

1.7 One tool kit containing all necessary tools for operating and maintaining and servicing the plant.

1.8 One pneumatic manually operated cutting tool for cutting small strands. The tool is fitted with a cutting disc of 9 $\frac{1}{4}$ " diameter and 20 spare discs are included.

1.9 One Handbook containing all instructions for running and maintaining the plant.

Item 1.1 to 1.9 \$ 140.940.00

2.0 Holding furnace designed as tilting and non-crucible type, with a capacity of 10.000 LBS of molten copper. Fasteners for easy attachment of cooler assemblies are provided. Cleaning and preparation of the furnace including mounting of the coolers is easily achieved because of the tilting of the furnace shell about its gravity axis. The holding furnace assembly consists of the following items:

2.1 One cradle for the holding furnace made of heavy structural steel sections, complete with provisions to receive the holding furnace and with devices to adjust and align the holding furnace for the different sections to be cast.

2.2 One heavy duty hydraulic tilting device for easy positioning and tilting of the holding furnace.

Item

2.3	One holding furnace shell with a capacity of 10,000 LBS inclusive of frontplate and exchangeable flange plates for attachment of the coolers to the holding furnace. Mounting devices for the electric induction heating unit to the holding furnace are provided on same. One cover for the holding furnace with provision for mounting the oil or gas burner to pre-heat the holding furnace. Due to the special design of the cradle, holding furnaces can easily be exchanged with one another.	
	Price for items 2.1 to 2.3	\$ 29,805.00
2.4.1	Heavy duty insulating material and refractory material for the holding furnace shell and cover	\$ 5,110.00
2.4.2	One permanent template for installing the refractory lining to the holding furnace.	\$ 2,470.00
2.4.3	One vibrating tool for installing the refractory lining.	\$ 925.00
2.5	One oil or gas burner, including flexible armoured hoses for gas or oil and air supply. All necessary safety valves are the customers responsibility. ...	\$ 1,900.00
2.6	One electric fan in heavy gage steel sheet housing, with dynamically balanced impellor mounted directly on the motor shaft and powered by a 3-phase squirrel electric cage motor which is dust and water proof. ...	\$ 760.00
3.0	A mains frequency(type)channel-type induction heating unit for electric heating of the molten metal in the holding furnace. Devices for mounting the induction heating unit to the holding furnace are provided. The heating unit consists of the channel-type inductor and the electric switching and control station.	
3.1	One channel-type inductor, nominal channel capacity 200 KW max., suitable for 1-phase connection to the control panel. The channel inductor consists of a heavy gauge sheet metal housing of welded construction, of the channel-forming template and the necessary insulation and refractory lining. In addition, the inductor is equipped with the transformer, the coil and the protective cylinder for the coil. Cooling of the induction coil is effected by air which is blown through the cylinder surrounding the coil. A heavy duty fan guarantees safe working conditions.	

Item

- 3.2 One electric switching station for the inductor, suitable for 3-phase connection to the main and consisting of:
- 1 voltage adjusting control transformer
 - 1 balancing choke
 - 1 frame for installing the main contactor and bus bar current transformer
 - 1 capacitator bank for factor compensation
 - 1 switch board completely wired and equipped with all necessary devices to control and regulate the induction heating unit
 - 1 temperature measuring and regulating device for automatic control and regulating of the melting temperature within the holding furnace, including a thermocouple of Pt-Rh-Pt 10% DIN design.

Item 3.0 to 3.2 supplied by others (approx. price) \$ 36.000.00

4.0 The coolers are easily attached to the holding furnace and can be exchanged in about 30 to 60 minutes. The coolers are fitted with water inlets and outlets. All material for fitting the coolers will be supplied with the coolers. Also included will be all armoured flexible hoses to connect the coolers to the water system and suitable fastenings for assembling the whole cooling system.

4.1 One set of cooling jackets, consisting of 2 jackets for 2 strand production of strip up to 12" wide..... \$ 3.175.00

4.2 Two cooling jackets (spare) for the production of strip up to 12" wide. \$ 3.175.00

..... necessary safety devices are included, with this saw strands up to 10" diameter can be cut. The cold saw is synchronised with the drive unit of the withdrawing machine and is capable to cut two strands. Together with the set four saw blades are supplied.

Price item 7.0 \$ 45.705.00

9.0 One holding furnace shall same as item 7.1 of this quotation. \$ 9.300.00

10.0 One complete inductor as spare, supplied by others \$ 10.000.00

Initial equipment of graphite dies for Horizontal Continuous Casting Plants, TECHNICA design.

Item

- 5.0 The dies used are high quality dies and the number required depends on the production requirements. Not all types of graphite are suitable for use as die material. We constantly check various types of graphite and recommend U.S. Made graphite for your type of production. The dies can easily be machined on lathes. Instruction for machining is given in the operation manual.

The life of the graphite dies depends largely on the operating conditions and can be several production days or weeks. Therefore, graphite costs per pound of produced material are very low.

We recommend to order the initial set of dies together with the horizontal continuous casting plant.

10 graphite dies for the production of strip up to 12" wide \$ 2.340.00

- 6.0 Starter bars and draw bars are to be supplied by the client according to our drawings.

- 7.0 One automatic cutting machine, designed as circular cold saw for strands with the same casting speed. The machine is designed for synchronized movement with the strands while the strands are being cut. Together with this saw a control panel is supplied. The movement of the saw is controlled hydraulically, all necessary safety devices are included. With this saw strands up to 10" diameter can be cut. The cold saw is synchronised with the drive unit of the withdrawing machine and is capable to cut two strands.

Together with the saw four saw blades are supplied.

Price item 7.0 \$ 46.705.00

- 9.0 One holding furnace shell same as item 2.3 of this quotation. \$ 9.300.00

- 10.0 One complete inductor as spare, supplied by others \$ 10.000.00

The erection of the horizontal continuous casting plant requires the preparation of the foundations and connections to energy sources to be in the vicinity. When ordering a machine, you will receive all necessary data and drawings to set up the foundation. Sources are needed for water, electricity, compressed air, heating oil or gas. Connecting pipes are to be supplied by the customer and must be fitted under the supervision of our fitters.

We would recommend to install the horizontal continuous casting plant under the range of action of a crane of about 12 tons capacity. In any case it is necessary to install the holding furnace with the coolers near a crane.

Setting up the equipment will be done by your personnel. For supervision of the installation and training of your operators, Technica-Guss will send one fitter (operator) for a period of four weeks and one engineer for a period of two weeks. Charges for these services are extra and will be in accordance with the "Terms on which fitters can be assigned to a customer", a copy of which is enclosed.

The sale of a horizontal continuous casting machine is subject to a know-how agreement between the customer and TECHNICA-GUSS, in which the customer commits himself not to copy horizontal continuous casting plants TECHNICA design and which furthermore has TECHNICA-GUSS agree, for a certain period of time, to pass on to the customer any development work which has been done after the installation of a continuous casting plant.

On delivery of the plant you will receive an instruction manual containing all relevant data necessary for the operation and maintenance of the plant.

When operating the horizontal continuous casting plant it is necessary, that liquid metal with its correct temperature will be at the disposal of the personnel, operating the plant. If there is no possibility to check the liquid metal temperature, we are quite prepared to submit to you a detailed quotation on temperature measuring equipment.

A constant water pressure is necessary. The total amount of water is 4.000 gallons per hour.

All prices are understood C.I.F. New York or Baltimore. Import duty is included. State and/or municipal taxes if applicable are extra. Any special or additional taxes imposed by the U.S. Authorities during the time it takes to deliver the equipment, is the responsibility of the customer.

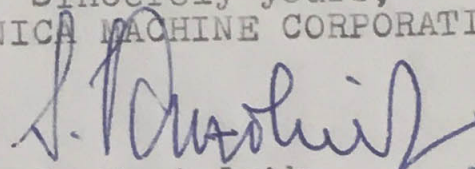
All prices are valid for a period of 90 days.

Terms of payment:

30% of total amount with the order
60% of total amount against shipping papers
10% of total amount 4 weeks after commissioning of the plant.

Delivery can be made within 6 months after receipt of an order.

Sincerely yours,
TECHNICA MACHINE CORPORATION



S. Kostolnik
General Manager.

SK:ak
Encl.

Terms on which fitters can be assigned to a customer

Technica-Guss GmbH, Würzburg

Fitters can be assigned to be customer under the following conditions. Any other arrangements will have to be in writing, verbal agreements are not valid.

Technica-Guss will send qualified personnel to the customer to install the plant and put it into operation. The personnel will consist of:

- 1 Engineer
- 1 Fitter (operator)

The period of time necessary to install the machine and put it into operation depends on its size, and in general amounts to 2–3 weeks. The final installation time will be agreed upon, together with the customer.

Technica-Guss has the right to exchange the fitting personnel at site in case of serious personal reasons of the fitters, providing the exchanged personnel has the same qualifications as the original fitters.

1. Working time

The standard working time of our fitters is 40 hours per week, and 8 hours a day. Distribution of working time is normally set to suit the prevailing working conditions of the customer. By request of the customer, however, it can be arranged differently. In urgent cases our fitters are willing to work overtime in the evening, night, or Sundays, as on holidays at the additional overtime rates listed below.

2. Costs

The charges for our fitters are as follows

- 1) Daily/hourly rate
- 2) Subsistence allowance
- 3) Travelling expenses
- 4) Additional expenses

Engineer's charge:

Daily rate	DM 280.00	per calendar day, including the day of arrival and the day of departure
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Subsistence allowance		per calendar day, including the day of arrival and the day of departure
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and DM 210.00	per calendar day, including the day of arrival and the day of departure
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Fitter's charge:

Hourly rate	DM 28.00	per working, hold-up and travelling hour
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Subsistence allowance		per calendar day, including day of arrival and day of departure
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and DM 140.00	per calendar day, including day of arrival and day of departure
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The subsistence allowance in the currency of the customer's country, including day of arrival and day of departure, will have to be paid directly to the engineers and fitters. When travelling by air, the subsistence allowance is reduced by 50% for the time of the journey.

An account will be made by the end of the month or when work is completed, indicating the hours worked. Payment is due immediately upon receipt of invoice.

Overtime i.e. working hours in addition to the standard 40 hour week (8 hour day), will be charged at an additional 25%. Night work from 8 p.m. — 8 a.m. will be charged at an additional rate of 50%.

Any work on Sunday will be charged at an additional rate of 50%.

Work on official German holidays will be charged at an additional of 50%.

Official German holidays are:

1st of January

Good Friday

Second day of Easter

1st of May

Ascension Day

Second day of Pentecost

Corpus Christi day

17th of June (German Memorial Day)

All Saints' Day

First and second day of Christmas.

If on the day of arrival, the travelling time plus working time exceeds 10 hours, any additional hours worked will be charged as overtime, even if the total 40 working hours a week are not accumulated.

Overtime is to be paid against our invoice at the end of each month or when work is completed.

Travelling expenses:

by train : first class

by air : tourist class

by car : DM / km

are charged to the customer.

Travelling time up to a maximum of 10 hours per day will be counted as working time, and will be charged as such.

Additional expenses

Freight charges for baggage and special tools, fees for visa, vaccination and certificates etc., will have to be paid by the customer, and will be charged separately.

If the fitters, due to an unfavourable location of the customer's plant, are subjected to additional expenses which are in no reasonable relation to their daily subsistence allowance, the additional costs will be charged to the customer. The additional costs are the actual costs for overnight stay, if they amount to 25%, and for food if they amount to 50% of the daily subsistence allowance.

3. Waiting time

If the fitters are unable to work the standard time of 40 hours a week, for reasons outside their responsibility, the waiting time will be charged as working time.

The working hours and the waiting time are to be verified by a supervisor each week-end, and upon termination of the fitting period.

4. Payment

Payments are due immediately upon receipt of invoice without deductions. Payments may not be withheld owing to counterclaims by the customer.

Any litigation shall be subject to Würzburg Court of Justice.

General Conditions of Sale

A. Estimate and Formation of Contract

An order is only accepted when confirmed in writing by the supplier; up to then the estimate submitted by the supplier is not binding. Supplements, modifications or accessory stipulations agreed upon by telex, telegraph, telephone or verbally have to be confirmed also in writing by the supplier in order to become valid.

B. Extent of Obligation to Deliver

1. The extent of the obligation to deliver is set forth in the written confirmation of the contract by the supplier.
2. Safety devices included in the purchase price will be supplied as far as they have been agreed upon.

3. Documents appertaining to the estimate, such as illustrations, drawings, statements of weight, dimensions, floor space, power performance ratings and other data are to be taken as approximate only, unless the contrary is expressly stated.

The supplier reserves to himself all proprietary and author's rights of all estimates, drawings and other documents forwarded. Such documents are not to be made accessible to third parties.

4. For electrotechnical material the terms of the Central Federation of German Electrical Manufacturers (Zentralverband der elektrotechnischen Industrie), and for manufacture the regulations of the Federation of German Engineers (Verband deutscher Elektrotechniker) are valid.

C. Prices and Terms of Payment

1. If not otherwise stated, prices are to be understood ex factory and do not include insurance, packing and installation. They are furthermore to be understood exclusive of all governmental and municipal taxes which in future — also with retrospective effect — may be fixed or collected for single dispatches. In any case, the terms as stated in the confirmation of order are valid.

2. Payments are due, without any deductions, free at the supplier's domicile, according to the terms of the confirmation of order.

3. Bills of exchange and cheques are accepted only in lieu of cash; charges for discount and presentation have to be borne by the buyer.

4. In case of delay of payment interest will be charged at the rate of at least 2 % above the discount rate of the Deutsche Bundesbank, no formal notice being required.

D. Time of Delivery

1. The time within which delivery is to be completed is to be reckoned from the submission and approval of all technical and commercial details and other data affecting the execution of the order and from receipt of the first payment on account.

The delivery is in time, if the goods are ready for dispatch within the time agreed upon and this fact has been notified to the buyer. The obligation to deliver within the agreed time is subject to the buyer having fulfilled his obligations.

2. Part deliveries are permitted.

3. Unforeseen events which are beyond the control of the supplier, such as break-downs, defects necessitating renewed manufacture, strike, lock-out — whether occurring in the supplier's works or in those of his subcontractors — extend the time of delivery in so far as these events materially affect the punctual fulfilment of the contract or that portion of it, which is about to fall due. In important cases the supplier will notify the buyer of the beginning and end of such conditions in the supplier's works as soon as it can be recognized.

4. Should any delay in delivery be caused by other circumstances as mentioned before, but due to an act of omission of the supplier, and should therefrom be caused a detriment or loss to the buyer, the latter will be entitled to claim an amount in compensation for each expired fortnight of delay of not more than 1/2 %, but altogether an amount not exceeding 5 %, of that part of the total delivery which the buyer was not able to put to use expediently, because one or some components of the delivery were not completed in time. The compensation which the supplier will have to pay in such a case is to be balanced in the final settlement of accounts.

5. If the delivery is delayed on request of the customer he will be charged with the storage costs of a minimum of 1/2 % of the invoice amount per month, beginning one month after the machine was announced to be ready for shipment. Instead of the above mentioned regulation the supplier can dispose of the equipment in some other way, after having set a reasonable prolongation period, and has the right to deliver the buyer with a reasonably prolonged term of delivery.

E. Passing of the Risk

1. All risks pass to the buyer at the latest on dispatch ex works of the goods, also in case of fob delivery. In the event of the dispatch being delayed by causes attributable to the buyer, all risks are transferred to him on advising him of the goods being ready for dispatch.

2. Insurance against damages on the transport is only covered on buyer's demand, and at his own charges.

F. Liability for Defective Supplies

Provided the buyer abstains from introducing on his own initiative alterations or repairs, the supplier is responsible for defects in the goods supplied, including shortcomings in the guaranteed qualities, to the exclusion of all other claims, as follows:

1. The supplier undertakes, at his option, to put right or replace free of charge any parts which within six months (or within two months in case of day and night operation) from the passing of the risk, or in case of delivery, in- and night operation included, after completion of the installation, shall be proved to be stallation included, after completion of the installation, shall be proved to be faulty unworkable or seriously impair the use notably in consequence of faulty design, imperfect material, or defective workmanship. Notice in writing of any such defects shall be given to the supplier immediately upon their discovery within the time of guaranty. In the event the dispatch or the installation being delayed through no fault of the supplier the guaranty for defects expires at

the latest twelve months after receipt of the advice of the goods being ready for dispatch. Any parts which have been replaced become the property of the supplier.

The supplier does not accept liability for other imperfections beyond those specified above, neither as regards the quality of the goods nor in legal aspects.

The buyer is obliged to give — without charging any cost to the supplier — the possibility and time necessary for undertaking all alterations the supplier may consider to be of necessity, for incorporation of new parts into the machine or replacing the whole machine and to provide the required unskilled labour.

2. The supplier's liability is subject to the fulfilment on the part of the buyer of all his obligations under the contract, especially with regard to terms of payment. For machines which are forwarded dismantled, and which are not installed by a fitter of the supplier, the latter takes no liability.

3. If the supplier does not admit a complaint or claim duly made by the buyer, the buyer's right to establish claims based on alleged defects will lapse within 6 months from the date of a claim raised in time, at the earliest, however, at the expiration of the supplier's guaranty.

4. The terms regarding liability and time for delivery refer also to repair work and replacements.

5. The supplier's guaranty does not extend to cases of ordinary wear and tear, nor to damages due to faulty or careless operation, to excessive use, to the use of unsuitable auxiliary material, to defective builder's work, to an unsuitable foundation, or to chemical, electro-chemical or electrical influences which may arise through no fault of the supplier.

6. If the supplier furnishes other makes (such as refractories, graphites, electrotechnical material, and other devices) he accepts only those liabilities which his subcontractors take towards him.

7. All production data given are approximate, they depend on the existing particular conditions and relate to the demonstration by the supplier.

G. Right of Buyer as to Cancellation or Diminution of the Contract

1. Should the supplier be unable to fulfil the contract as a whole or in part, as a result of force majeure, the buyer shall, in case of total inability to carry out the contract on the part of the supplier, be entitled to cancel the said contract, or in the case of partial inability to fulfil the said contract he shall be entitled to claim a proportionate reduction in price.

2. The buyer shall further be entitled to withdraw from the contract in the event of the supplier having allowed to elapse ineffectively an adequate extension of time granted him under the terms of contract for remedying a proved or admitted defect for which he is responsible.

3. The buyer shall not be entitled to withdraw from the contract unless his interest in the delivery has seriously suffered or has been totally impaired through the aforementioned defect.

4. The buyer is not entitled to any further claims.

H. Right of Supplier as to Cancellation of the Contract

The supplier may withdraw from the contract if the financial situation of the buyer gets essentially worse and no appropriate securities can be given.

I. Reservation of Ownership

1. The goods supplied remain the property of the supplier until paid for in full. Up to that time the buyer has to insure the goods at his cost against damage by fire, water, and breakage. The reservation of ownership is not made void by the fact that the outstanding debt regarding the purchase price may have been included in a statement of account of any kind.

In countries where this reservation of ownership is subject to legal forms and conditions, the buyer shall be obliged to take care that such conditions are fulfilled.

2. A resale of goods which have not yet been paid for in full is permitted only with the formal written consent of the supplier.

J. Legal Disputes

1. The place of litigation in the event of disputes arising out of the contract shall be the court of justice at the domicile of the head office of the supplier, but the latter may select to sue at the domicile of the buyer.

2. If for supplies to countries outside Germany the two parties agree to arbitration, the following conditions are to be observed:

Differences resulting from the contract, especially concerning its origin, interpretation and fulfilment, whether they refer to facts or legal points, are exclusively and definitely decided by a court of arbitration.

The court of arbitration is to be so composed and located, and the procedure to be so arranged that the execution of the arbitration is secured in work and replacements.

Unless there exist binding legal regulations to the contrary, the procedure shall be as follows:

Either party shall nominate an arbitrator within one month after the receipt of a request to that effect from the other party. The two arbitrators nominated shall then proceed to elect a chairman. In the event of the one or other of the two parties failing to nominate an arbitrator within one month of the request, or in the event of an arbitrator resigning or indefinitely protracting the procedure, or in the further event of the two arbitrators failing to come to an agreement within one month regarding the person of the chairman, the missing arbitrator as well as the chairman will be nominated by the president of the International Chamber of Commerce.

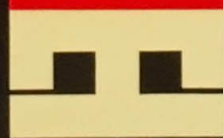
The place of the meeting and the procedure of the court of arbitration is fixed by the chairman; however, care has to be taken that execution of the arbitration is secured in the country of the debtor.

As far as in the respective law cogent regulations are contained about the combination of the court of arbitration, same will have to be adhered to instead of those mentioned above.

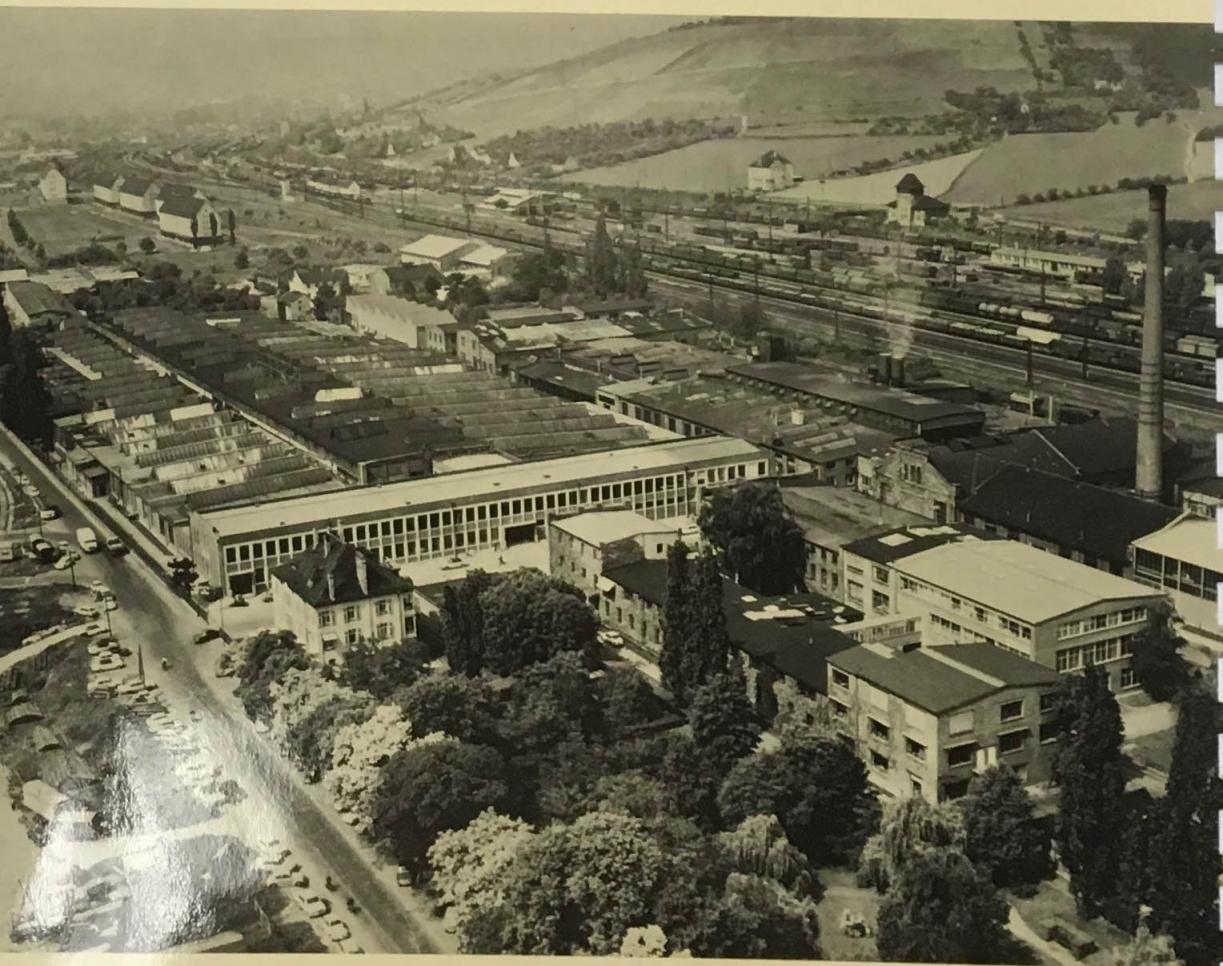
3. For all disputes arising from the contract, recourse must be taken to the regulations of the above mentioned terms of delivery, the other agreements of the parties, and German law has to be applied unless, binding regulations of foreign countries stand in the way.

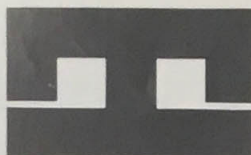
**Horizontale
Stranggieß-
Anlagen**

**Horizontal
Continuous
Casting Plants**



Technica





Liebe Geschäftsfreunde!

Das horizontale Stranggießen erlebte in den letzten Jahren eine stürmische Entwicklung. Langjährige Erfahrungen und umfangreiche Forschungsarbeiten führten zur Entwicklung einer besonders erfolgreichen Verfahrenstechnik und dann schließlich im Jahre 1963 zur Gründung der Firma Technica-Guss GmbH.

Als Tochtergesellschaft des ältesten Druckmaschinenherstellers der Welt, der Schnellpressenfabrik Koenig & Bauer AG., Würzburg, stehen uns alle Möglichkeiten eines hochqualifizierten Maschinenbaues mit ca. 2000 Mitarbeitern zur Verfügung.

Neben der Qualität des Maschinenbaues ist jedoch die Anpassung der Maschinenanlagen an die Erfordernisse des praktischen Gießereibetriebes ein tägliches Anliegen unseres Unternehmens. Wir haben daher eine Gießerei aufgebaut, in der alle Neuentwicklungen täglich geprüft werden, so daß laufend mehrere Stranggießanlagen in Betrieb sind. Daher ist die Vermittlung eines bedeutenden Know-How durch unsere Verfahrenstechniker und Gießerei-Ingenieure die besondere Stärke unseres Unternehmens. Darüber hinaus sind wir in der Lage, unsere Kundschaft über die Fragen des Einsatzzweckes und der Verkaufsmöglichkeiten von Strangguß zu beraten, da wir selbst mit einem großen Stranggußlager von über 500 Sonderprofilen einen Überblick über den Markt und die Verkaufsmöglichkeiten des Produktes besitzen.

Unsere horizontalen Stranggießanlagen arbeiten in zahlreichen Ländern der Welt zur größten Zufriedenheit unserer Kunden. Ein gut eingearbeiteter Mitarbeiterstab steht unseren Kunden für alle maschinentechnischen und gießereitechnischen Fragen zur Verfügung.

Das Arbeitsprogramm umfaßt folgende Gebiete:

- Herstellung von horizontalen Stranggießanlagen.
- Projektierung von Stranggießereien.
- Beratung in allen Stranggießfragen.
- Know-how für den Betrieb von horizontalen Stranggießanlagen.
- Erzeugung und Bearbeitung von Strangguß.

Mit freundlichem Glückauf

Dear Sirs,

in recent years, the horizontal continuous casting process has undergone drastic changes, coupled with considerable expansion in the use of its products. After many years of extensive research, and development of the process, Technica-Guss GmbH, was finally established in 1963.

Being a subsidiary company of Koenig & Bauer AG, Würzburg, who were the first rotary newspaper printing machine builder in the world, Technica-Guss has, at their disposal, all the extensive engineering, and machine building knowledge, and facilities, which employ 2000 personnel.

For the testing and development of our machines, we have our own continuous casting foundry, which is in daily production of various profiles of continuous cast sections, and in which feasibility studies, and engineering features are assessed.

Our own sales activities, in relation to our foundry, have resulted in the use of more than 500 profiles serving different industries. With this extensive knowledge of production, and applications of continuous cast material, our engineering staff can inform our customers about market trends and applications. Our horizontal continuous casting plants are successfully installed in many countries all over the world.

An experienced staff is at the disposal for full comprehensive information to our customers.

Our manufacturing and information service features:

- The production of horizontal continuous casting plants.
- Comprehensive schemes for foundries of continuous casting.
- Consultation on all questions about continuous castings.
- Know How for the operation of horizontal continuous casting plants.
- Production and machining of continuously cast material.

Yours faithfully,

Technica-Guss GmbH

H. A. Krall, President

Maschinen- Beschreibung

Allgemeines

In vielen Ländern der Welt produzieren Stranggießanlagen, Bauart Technica-Guss, auf wirtschaftliche Weise Rundstangen, Rohre, Vierkantstangen, Profilstangen und Bänder aus Eisen- und NE-Metallgüßwerkstoffen. Diese Stangen sind ein wirtschaftliches Halbzeug zum spanabhebenden Verarbeiten auf Drehbänken, Hobelmaschinen, Fräsmaschinen, Schleifmaschinen usw. Außerdem können geeignete Metalle und Legierungen spanlos weiterverarbeitet werden durch Walzen, Pressen, Rohrziehen u. ä. Verfahren. Jahrelange Erfahrung in der Fabrikation von horizontalen Stranggießanlagen und laufende Gießversuche im eigenen Unternehmen ermöglichen die Entwicklung der modernsten Stranggießanlagen.

Grundausrüstung

Die Grundausrüstung einer Stranggießanlage besteht aus dem Warmhalteofen mit kompletter Spezialisolierung und Ausmauerung und wird je nach Anlagentyp mit Öl-, Gas- oder Elektroenergie betrieben. Die Öfen sind ausgestampft oder mit einem Tiegel versehen. Der Inhalt an Schmelze richtet sich nach dem Verwendungszweck und beträgt zwischen 50 und 5000 kg. Ein weiterer Bestandteil der Grundausrüstung ist die Zieheinrichtung mit dem Schaltpult zum Einstellen der automatisch ablaufenden Ziehvorgänge. Rollgänge dienen zur Auflage und Führung des Stranges. Eine Regel- und Kontrolleinheit überwacht die Kühlwasserversorgung.

Zubehör

An dem Warmhalteofen werden die wassergekühlten Kühler mit den Graphitkokillen angebracht. Der Bedarf und die Ausführung von Kühlern und Graphitkokillen richten sich nach den herzustellenden Strangquerschnitten. Zum Trennen der Stränge liefern wir Sägen und Trennschleifmaschinen in mehreren Typen, handbedient oder automatisch, fahrbar oder stationär. Außerdem liefern wir Abbrecheinrichtungen, welche bei Gußeisen angewendet werden. Zur Kontrolle der Temperatur der Schmelze und der Strangtemperatur liefern wir auf Wunsch geeignete Meßeinrichtungen.

Verfahren

Der Warmhalteofen dient zum Warmhalten der Metallschmelze. Er wird vorgeheizt und zu Beginn der Produktion mit flüssigem Metall aus dem Schmelzbetrieb gefüllt. Während der Produktion befindet sich immer eine gewisse Mindestmenge in dem Warmhalteofen und es wird in bestimmten Zeitabständen eine bestimmte Menge flüssiges Metall nachgefüllt. Die Schmelze fließt aus dem Warmhalteofen in eine Graphitkokille, welche am unteren Teil angebracht ist und mit Hilfe eines Kühlers mit Wasser gekühlt wird. In der Kokille erstarrt die Schmelze und wird durch die Ziehmaschine als Strang herausgezogen. Auf diese Weise können Rundstangen, Quadratstangen, Profile und Rohre wirtschaftlich hergestellt werden. Die Ziehbewegung erfolgt schrittweise mit einer Pause nach jedem Schritt. Dabei können die Schritte und Pausen so klein sein, daß nahezu kontinuierlich gezogen wird bei möglichen Frequenzen über 1000 Schaltungen je Minute. Der vorgewählte Bewegungsablauf erfolgt vollautomatisch und kann am Schaltpult stufenlos auf die Betriebsbedingungen eingestellt werden. Schmelztemperaturen, Strangtemperaturen, Kühlwasserkreisläufe, Ziehbewegungen und die Ziehggeschwindigkeiten sind abhängig von der Stranggröße, Strangform und von den verschiedenen Metall-Legierungen. Diese Werte werden in einem Handbuch vermittelt, das mit der Stranggießanlage im Rahmen der Ingenieurberatung geliefert wird.

Wirtschaftlichkeit

Horizontale Stranggießanlagen erfordern nur geringe Fundamentkosten und keine großen Bauhöhen. Nach Fertigstellung der Fundamente ist die Anlage in wenigen Tagen montiert und betriebsbereit. Als Betriebsmittel werden Heizöl, Gas oder elektrische Energie, Kühlwasser und eine geringe Menge Preßluft benötigt. Verbrauchsmaterial sind Stampfmassen und Graphitkokillen. Die Kosten für die Betriebsmittel und das Verbrauchsmaterial sind so gering, daß sie die Wirtschaftlichkeit günstig beeinflussen. Die Bedienung der Stranggießanlage erfolgt durch 1 bis 2 Personen. Wir beraten Sie gerne bei der Aufstellung einer Wirtschaftlichkeitsrechnung für ihren Betrieb.

Description of the Machine

General

In many countries all over the world round bars, tubes, square bars, profiles and plates of grey iron and nonferrous metals are being produced economically on continuous casting plants of Technica-Guss design. These bars are very economical for further manufacturing of components on lathes, planing machines, milling machines, grinding machines etc. Moreover, suitable metals and alloys can be processed by rolling, pressing, pipe drawing, and other methods. Many years experience in the production of horizontal continuous plants and continual developments in our own works make possible the development of the most up-to-date continuous casting plants.

Basic Equipment

The basic equipment of a continuous casting plant consists of a holding furnace with a special complete insulation and lining, and is heated by using oil, gas, or electricity according to the type of the plant. The furnaces are lined or equipped with a crucible. The content of liquid metal depends on the application and can amount to between 50 and 5000 kgs. A further part of the equipment is the drawing unit with the control panel for the regulation and programming of the automatic running of the plant; roll stands for supporting and guiding of the strand. A panel containing all water flow meters and flow meters for oil or gas, together with all regulator valves. Water temperature indicators are also included.

Optional Equipment

The water cooling jackets with the graphite dies are attached to the holding furnace. The amount and type of the graphite dies depend on the cross sections desired of the strand. For the cutting of the strands a large number of different units are available, manually or automatically operated, movable or fixed. We also supply break-off units, which are used for grey iron. For the control of temperature of the liquid metal and of the temperature of the strand we can supply suitable temperature measuring equipment.

Process

The holding furnace serves for keeping the liquid metal at an adequate temperature. It is initially heated and then filled with liquid metal from the melting units. During production a certain level of metal must always be in the holding furnace, and at predetermined periods quantities of molten metal are required. The metal is drawn from the holding furnace into a graphite die, which is fitted into a cooling jacket, or jackets, situated at the base of the holding furnace. The molten metal solidifies within the die, and is drawn out as a strand by the drawing unit. In this way, rounds, squares, special profiles and tubes, can be economically produced. The drawing process takes place by steps with a pause after each step. The steps and pauses can be so small that it can be drawn almost continuously up to more than 1000 cycles per minute. The afore mentioned process is fully automatic and can be regulated from the control panel in relation to the conditions and the material available. Melt temperatures, strand temperatures, cooling water circulations, draw movement and the drawing speed are relative to size and form of the strand, and to the different metal alloys. These values are to be found in a handbook which is delivered together with the continuous casting plant, and is part of our engineering service.

Economics

Horizontal continuous casting plants require little costs of foundations, and no special construction of building. After completion of the foundations the plant can be erected in a few days and is ready for production. It is necessary to have oil, gas, electricity, cooling water and compressed air, also materials such as refractories and graphite dies. The operational costs and maintenance are so low that they do not influence the economics to a great extent. The continuous casting plant is operated by 1 or 2 persons. We would be pleased to give you all the economic facts relating to your specific production.

Projekt-Planung

Project Planning

Horizontale Stranggießanlage, Bauart Technica-Guss, Typ 200/140/80 VISNE

- 1 Warmhalteofen mit Beheizungeinrichtung
- 2 Rollenständer und Strangführungen
- 3 Steuerpult und Regel- und Kontrolleinheit
- 4 Zieheinrichtung mit Antrieben
- 5 Trenneinrichtung
- 6 Rollgang

Maschinenteile:

- 1 Ventilator für die Brennerluft
- 2 Induktor
- 3 Einfüllöffnung für die Schmelze
- 4 Ofenkörper
- 5 Ofenachse
- 6 Öl- oder Gasbrenner
- 7 Ofendeckel
- 8 Befestigungsvorrichtung für die Kühler
- 9 Kühler
- 10 Ofengrube
- 11 Schaltschrank für den Induktor
- 12 Wendegetriebe
- 13 Wasseranschlußeinheit
- 14 Strang
- 15 Rollenständer und Strangführung
- 16 Fernthermometer für Kühlwasser
- 17 Regeleinrichtung für Heizöl und Kühlwasser
- 18 Durchflußmesser für Kühlwasser
- 19 Steuerpult zur Zieheinrichtung
- 20 Durchflußmesser für Heizöl
- 21 Wartungseinheit für Druckluft
- 22 Druckluftzylinder
- 23 Antrieb
- 24 Transportwalze
- 25 Druckrolle
- 26 Sägeblatt
- 27 Steuerpult für die Trenneinrichtung
- 28 Rollgang

Nutzhalt des Warmhalteofens	1 oder 1,5 t
Nettogewicht der Anlage	ca. 13 t
Elektrischer Anschlußwert ohne Induktionsanlage	ca. 37 kw
Elektrischer Anschlußwert der Induktionsanlage	150 kVA

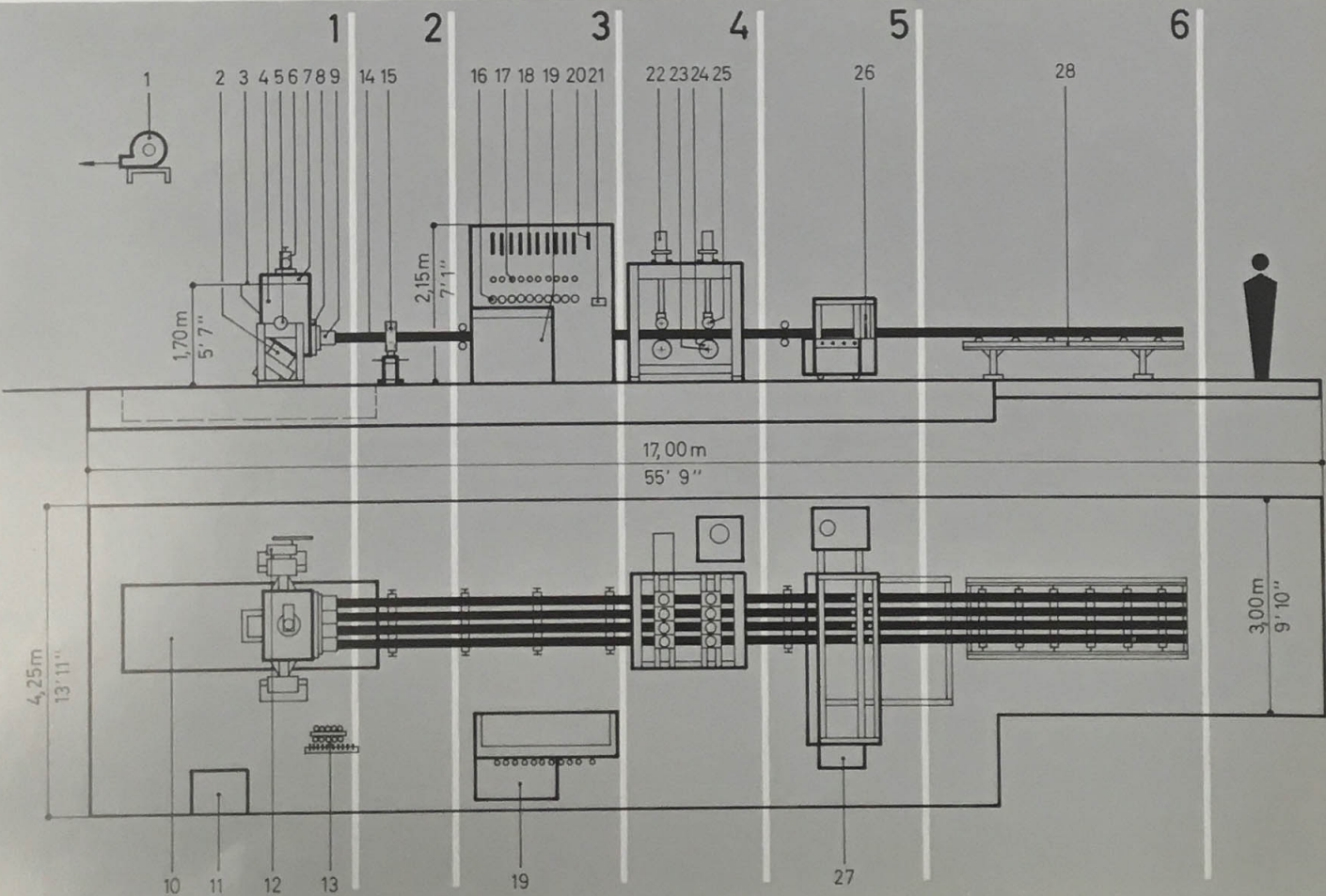
Horizontal continuous casting plant, design Technica-Guss, type 200/140/80 VISNE

- holding furnace with heating unit
- roll stands and strand supports
- control panel
- drawing unit with drive system
- cutting machine
- roller conveyor

parts of the plant:

- fan for burner air supply
- inductor
- pouring spout for the liquid metal
- furnace body
- furnace center line
- oil or gas burner
- furnace cover
- flange for attaching the coolers
- cooler
- furnace pit
- control panel for the inductor
- turning gear
- cooling water return
- strand
- roll stands and strand supports
- thermometer for cooling water
- control unit for oil and cooling water
- flow meter for cooling water
- control panel of the drawing unit
- flow meter for oil
- compressed air control and filter unit
- compressed air cylinder
- drive system
- transport roller
- pressure roll
- sawing blade
- control panel for the cutting machine
- roller conveyor

effective capacity of the holding furnace	1 or 1,5 t
net weight of the plant	approx. 13 t
electric connected value without induction plant	approx. 37 kw
electric connected value of the induction plant	150 kVA



Produktions- Leistungen

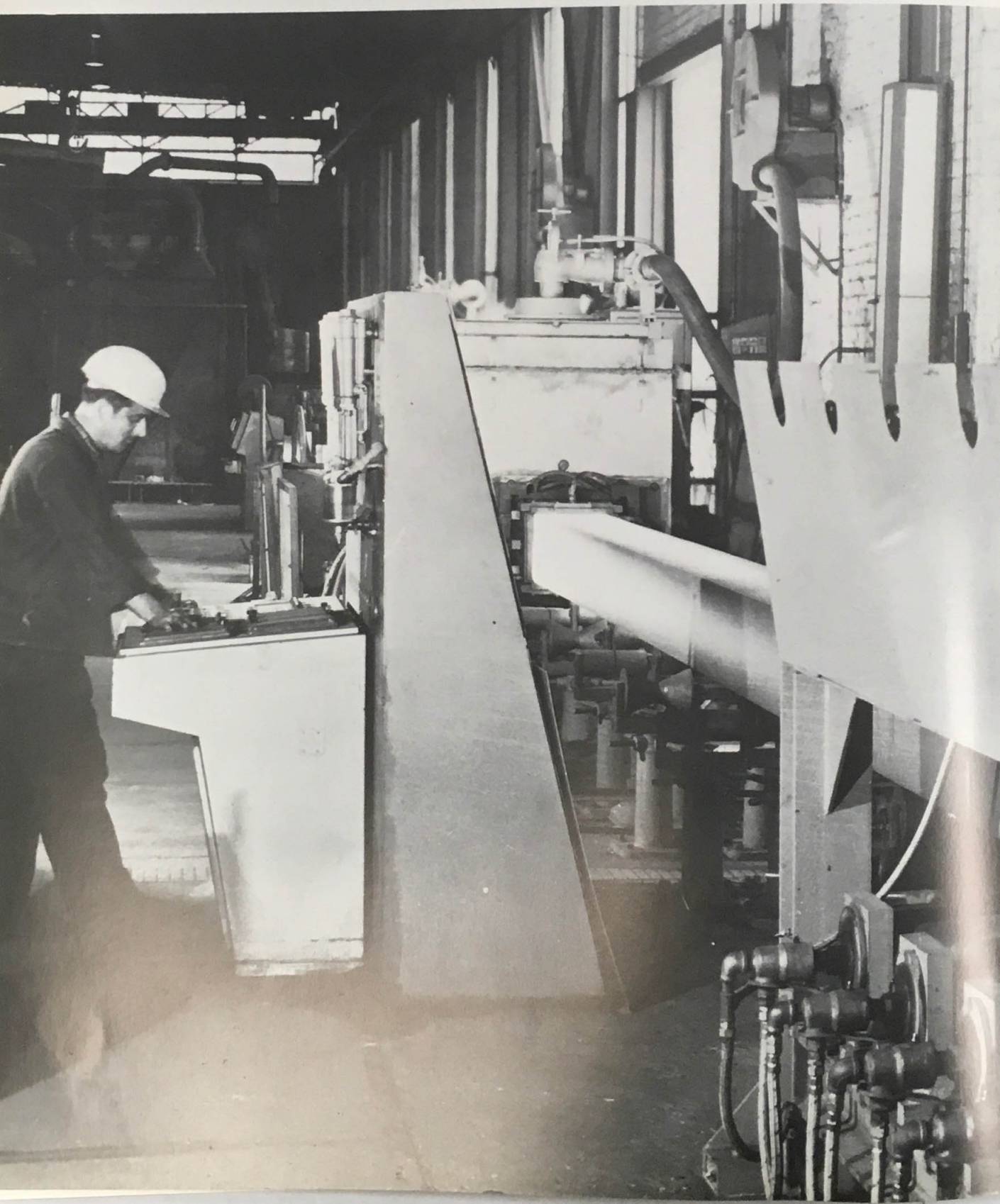
Die Produktionsleistungen hängen von mehreren Faktoren ab:

- Ausführung der Stranggieß-Anlage
- Kokillenwerkstoff und -ausführung
- Zusammensetzung der Schmelze
- Temperatur der Schmelze
- Eigenschaften der Stränge
- Querschnitt und Form der Stränge.

Mit unseren Stranggieß-Anlagen erreichen Sie unter Berücksichtigung dieser Faktoren optimale Leistungen.

Die angegebenen Werte sind Richtwerte und beziehen sich jeweils auf einen Strang. Bei Mehrstrang-Anlagen müssen diese Werte mit der Anzahl der Stränge multipliziert werden, um die Gesamtleistung der Anlage zu erhalten.

Strangdurchmesser	30 mm	100 mm	300 mm
Leistung je Strang	kg/h	kg/h	kg/h
Gußeisen je nach Zusammensetzung	160—260	700—1050	4100—5400
Schwermetall je nach Zusammensetzung	50—350	300— 700	1000—3000
Leichtmetall je nach Zusammensetzung	10— 30	40— 80	200— 400



Production Ratings

The production rate depends on a number of factors, such as:

- Construction of the continuous casting plant
- die material and design
- Composition of the melt
- Temperature of the melt
- Cooling characteristics of the melt
- Cross section shape of the strand.

With our continuous casting plants you receive optimum capacities in regard to these factors.

The stated values are approximate values and refer to production of only one strand. The values have to be multiplied by the number of strands of a multi-strand plant, in order to arrive at the total productive capacity of the plant.

Diameter of the strand	30 mm	100 mm	300 mm
Production for one strand	kgs/hour	kgs/hour	kgs/hour
Cast iron depending on composition	160–260	700–1050	4100–5400
Copper alloys depending on composition	50–350	300– 700	1000–3000
Aluminium alloys depending on composition	10– 30	40– 80	200– 400



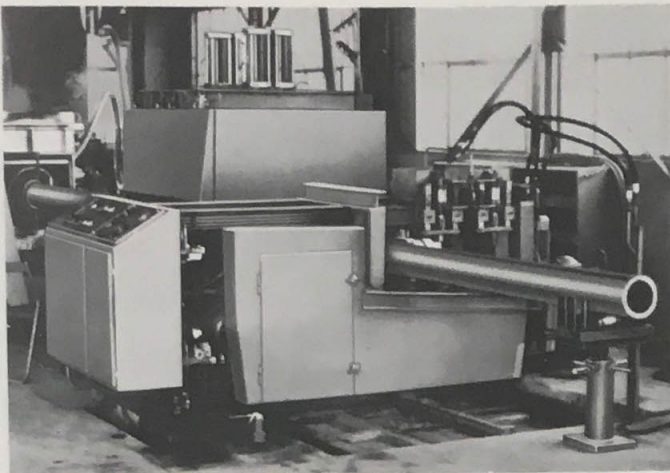
Technica- Vorzüge

- Großes Fertigungsprogramm, daher günstige Maschinenauswahl. In unserer Maschinentabelle finden Sie die am besten geeigneten Anlagen und Ausrüstungen für die verschiedensten Produktionsanforderungen.
- Großer Einstellbereich unserer Ziehvorrichtungen. Wir liefern Ziehvorrichtungen, mit denen große Einstellbereiche von Werkzeit, Ziehlänge, Ziehvorrichtung und Vibrationsschritt erzielt werden können.
- Stufenlose Regelung der Ziehvorrichtungen. Die Schrittlängen und Wartezeiten sind von einem Steuerstand aus stufenlos einstellbar.
- Mehrfachantrieb ergibt höchste Betriebssicherheit beim Ziehen. Jeder Strang wird mindestens durch 2 hintereinander geschaltete Transportrollen bewegt.
- Mehrfachführung des Stranges vermeidet Verzug. Jeder Strang ist in der Ziehmaschine mehrfach geführt, auch während der Ziehpausen.
- Vielseitige Produktionsmöglichkeiten auf Mehrstranganlagen. Verschiedene Querschnitte können gleichzeitig auf einer Mehrstranganlage produziert werden.
- Unkomplizierte, robuste Bauweise der Anlagen. Unsere Horizontal-Stranggießmaschinen sind im rauen Gießereibetrieb erprobte Konstruktionen, die nur geringer Wartung bedürfen.
- Produktionsumstellung in kurzer Zeit möglich. Die Warmhalteöfen lassen sich schnell austauschen und die Ziehmaschinen kurzfristig einrichten.
- Gut zugängliche Ofenausmauerung. Unsere Ofengefäße sind so konstruiert, daß sie eine einfache und schnelle Reinigung und Zustellung ermöglichen.
- Einfache Montage der Kokillen an die Warmhalteöfen. Die vorgefertigten Graphitformen und Kühler lassen sich schnell und einfach an die Ofengefäße anflanschen.
- Nur geringe Betriebsmittelkosten erforderlich. Zum Antrieb elektrische Energie sowie Preßluft; für die Warmhalteöfen elektrische Energie, Gas oder Öl; ferner Stampfmasse für die Öfen und Graphit für die Kokillen, sowie Kühlwasser.
- Niedrige Bauhöhe, geringe Fundamentkosten. Horizontal-Stranggießanlagen stehen auf Flurhöhe, wodurch bauliche Veränderungen an Gebäuden und tiefgründende Fundamente vermieden werden.
- Niedrige Personalkosten. Eine Anlage kann von 2 Personen bedient werden; Mehrmaschinenbedienung ist möglich.
- Großes Zubehör- und Ersatzteillager. Ersatzlieferungen von Austausch- sowie Zubehörteilen, Kühlern, Kokillen, erfolgen kurzfristig ab Lager, so daß Ausfallzeiten der Stranggießanlagen weitgehend vermieden werden.
- Sonderkonstruktionen nach Kundenwunsch. Unsere Konstrukteure und der Maschinenbaubetrieb bauen Sondermaschinen und Zubeihöreinrichtungen nach Ihren Wünschen.
- Laufende Entwicklungsarbeiten durch tägliche Betriebsversuche. Technica-Stranggießanlagen können täglich in unserer Stranggießerei während der Produktion besichtigt werden. Hierbei geben Betriebsversuche Aufschluß über die Produktionsbedingungen für die verschiedenen Stranggußwerkstoffe und -querschnitte.
- Beratung in allen Fragen der Produktion von Strangguß. Erfahrene Ingenieure und Monteure stehen zur Einarbeitung und Beratung bei der Bedienung, Wartung, Schmelzföhrung und Qualitätskontrolle zur Verfügung.
- Verkaufs- und Marketingberatung. Unsere Verkaufsabteilung für Stranggußerzeugnisse berät Sie bei dem Aufbau Ihrer Verkaufsorganisation für Strangguß und in Fragen der Anwendungstechnik.

Technica Features

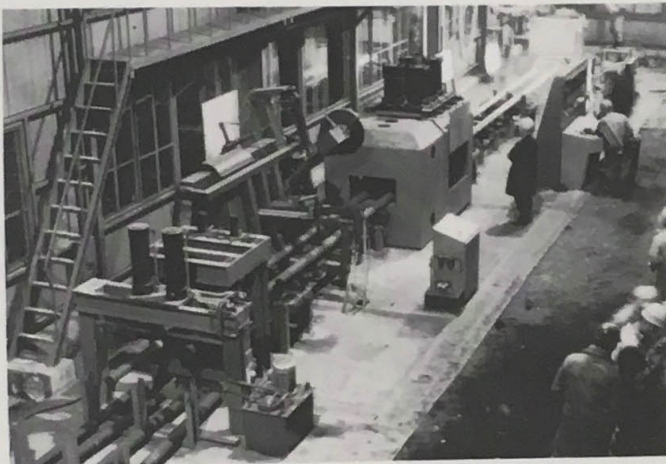
- Large production program, therefore optimal choice of plants. In our plant table you will find the best suitable plants and equipments for all different manufacturing requirements.
- Wide range of adjustment of drawing units. We deliver drawing units capable of a wide range for holdingtime, drawing length and -time and a vibration stroke.
- Infinitely variable control of the drawing unit. The stroke lengths and waiting times can be infinitely adjusted from a central control panel.
- Individual drive ensures maximum operational safety at drawing. Each strand is driven by at least 2 drive rolls in line.
- Guidance of the strand avoids warpage. Each strand is guided in the drawing unit at several points even during drawing pauses.
- Versatile production on multistrand machines. Different cross sections can be produced at the same time on one multistrand machine.
- Simple, sturdy construction. Our horizontal continuous casting plants are proven constructions, evolved from the rough environment of a foundry, and require only little service.
- Change over to different production in a short time. The holding furnace can be exchanged quickly, the drawing unit can be adjusted in little time.
- Easily accessible furnace lining. Our holding furnaces are constructed for fast and easy cleaning and servicing.
- Easy mounting of the dies to the holding furnaces. The mounted graphite dies and coolers are fixed quickly and simply to the holding furnaces.
- Low costs for consumables. For the operation electric energy as well as compressed air and cooling water is required; for the holding furnaces electric energy, gas or oil and refractories; for the dies graphite must be supplied.
- Low construction height, low foundation costs. Horizontal continuous casting units are set up to floor level, and do not necessitate building alteration or deep foundations.
- Low costs for personnel. One unit can be operated by two men with the possibility of multi unit operation.
- Large stock of auxiliary equipment and spare parts. Exchange parts, coolers, graphite dies, additional equipment can be delivered off the shelf, in order to keep down — time of the plant to a minimum.
- Special constructions on demand. Our designers and machine shop will build special machines and auxiliary equipment to customer demand.
- Continuous research through daily experiments. Technica-Guss machines can be observed in daily production in our own continuous casting foundry. Continuous experiments give conclusions to production conditions for different alloys and cross sections.
- Counsel in all questions of the production of continuously cast materials. Experienced engineers and fitters are at the customers disposal for running-in operation, service, melting operation and quality control.
- Advice in questions of sales and marketing for continuously cast products. Our sales office offers advice for the set-up of the customers sales organisation and questions of application.

1. Horizontale Stranggießanlage, Typ 200/65 DIS NB bei der Produktion eines Rohres 200/160 mm Durchmesser aus Reinkupfer.



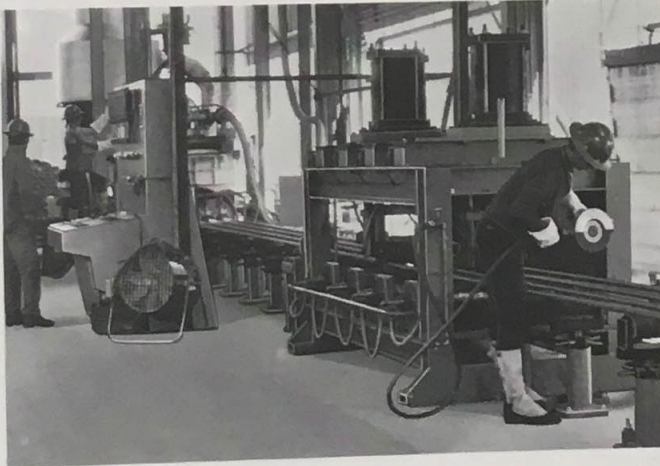
1. Horizontal continuous casting plant Type 200/65 DIS NB, producing a pure copper tube 200 mm OD, 160 mm ID.

2. Horizontale Stranggießanlage, Typ 250/250 D II GB bei der Produktion von 2 Strängen von 100 mm und 120 mm Durchmesser.



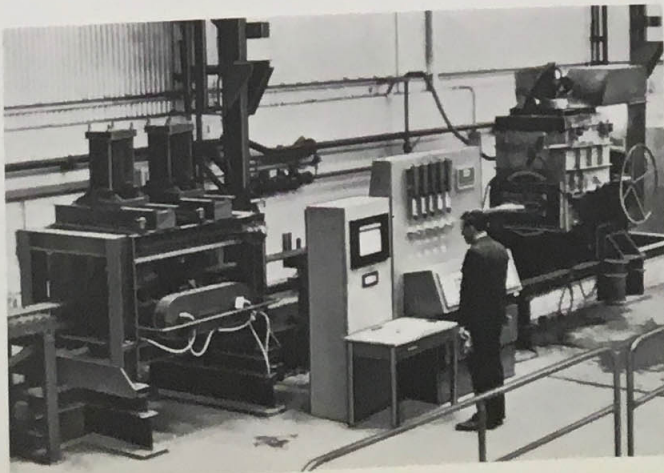
2. Horizontal continuous casting plant Type 250/250 D II GB, producing 2 strands of 100 mm and 120 mm diameter.

3. Vierstranganlage für Gußeisen, Typ 250/250/80 V IV GB bei der Produktion von Rundbarren von 50 mm Durchmesser.



3. Four-strand horizontal continuous casting plant Type 250/250/80 V IV GB, producing round bars of 50 mm diameter.

4. Horizontale Stranggießanlage, Typ 250 EISNE bei der Produktion einer Platine 44×266 mm aus einer Kupfer-Nickel-Legierung.



4. Horizontal continuous casting plant Type 250 EISNE, producing a cupro-nickel plate 44×266 mm.

Gußeisen-Strangguß

Anhaltswerte für die Eigenschaften und Anwendungsbeispiele von Gußeisen-Strangguß GGc-25

mechanische Eigenschaften

Zugfestigkeit	σ_B	kp/mm ²	20 bis 40
Brinellhärte	HB 30	kp/mm ²	170 bis 270
Druckfestigkeit	σ_{dB}	kp/mm ²	80 bis 110
Biegefestigkeit	σ_{bB}	kp/mm ²	40 bis 60
Elastizitätsmodul	E	10 ³ kp/mm ²	11 bis 13
Durchbiegung		mm	10 bis 14

Die Festigkeiten sind normalerweise vom Stranggußquerschnitt abhängig und steigen bei kleineren Querschnitten an.

physikalische Eigenschaften

Wichte bei 20 °C	kp/dm ³	etwa 7,3
Wärmeausdehnung (20 bis 100 °C)	10 ⁻⁴ m/m grd	etwa 0,8
Wärmeleitfähigkeit bei 20 °C	cal/cm grd s	0,10 bis 0,12

technologische Eigenschaften

sehr gut	Bearbeitbarkeit Polierfähigkeit Galvanisierbarkeit Rost- und Säurebeständigkeit Dämpfungseigenschaften
gut	Gleiteigenschaften Verschleißfestigkeit Emaillierbarkeit Härtbarkeit
Gefüge	feinkörnig, öl- und druckdicht, frei von Lunkern und Schlackeeinschlüssen
Oberfläche	sandfrei, werkzeugschonend
Spannungen	gleichmäßige Abkühlung, geringe Verzugsgefahr

einige Anwendungsgebiete	Bauteile aus Gußeisen-Strangguß
Hydraulik und Pneumatik	Steuerblöcke, Ventilgehäuse, Schiebergehäuse, Reglergehäuse, Steuer- und Druckzylinder, Steuerkolben, Schieber, Montageplatten, Rotoren für Druckluftmotoren.
Pumpen und Verdichter	Pumpengehäuse, Drehkolben für Rotationskompressoren, Ölpumpenzahnräder.
Werkzeugmaschinen	Maschinenschlitten, Aufspanntische, Führungsbahnen, Prismenschielen, Nockenleisten, Anschlagleisten, Maßstableisten, Keilleisten, Zentrierwerkzeughalter, Pinolen, Distanzbuchsen, Spindelmuttern, Druckspindeln, Pressenstempel, Getriebe-Wellen, Zahnräder, Zahnstangen, Keilriemenscheiben, Wechselräder.
Werkzeug- und Formenbau	Spritzgießformen, Glasformen, Kokillen, Werkzeugrahmen, Träger für Meisterstücke an Kopierdrehmaschinen, Maßstabträger für Feinmeßgeräte, Normelemente für den Vorrichtungsbau, Grundplatten, Winkelschienen, Rundtische, Anreißplatten.
Druckmaschinen	Grundrahmen, Duktoralwalzen, Farbmesserleisten, Schaltbalken zur Farbmengenregulierung.
Verbrennungskraftmaschinen und Kraftfahrzeugbau	Kurbelwellenlagerdeckel, Ventilstößel, Ventilführungshülsen, Zylinderlaufbuchsen, Stoßdämpferkolben, Wasserpumpenteile, Bremsflüssigkeitsverteilergehäuse.
Sonstige Anwendungsgebiete	Antriebe, Bergbaumaschinen, chemische Apparate, Fahrzeuge, Fördermittel, Hebezeuge, Maschinen und Einrichtungen für die Hüttenindustrie, Druckgießmaschinen, Nähmaschinen, Papiermaschinen, Schiffbau, Textilmaschinen, Automaten-drehteile, wie Flansche, Ringe, Hülsen, Buchsen, Verschraubungen.

Continuously Cast Gray Iron

Reference values for the properties and applications of continuously cast gray iron GGc-25

mechanical properties

Tensile strength	10 ³ lb/in ²	28— 57
Hardness HB	10 ³ lb/in ²	242—384
Compression strength	10 ³ lb/in ²	114—157
Binding strength	10 ³ lb/in ²	57— 86
Modulus of E	10 ³ lb/in ²	16— 19
Deflection	in	0.4—0.6

The tensile strengths usually depend on the strand cross section and increase with smaller cross sections.

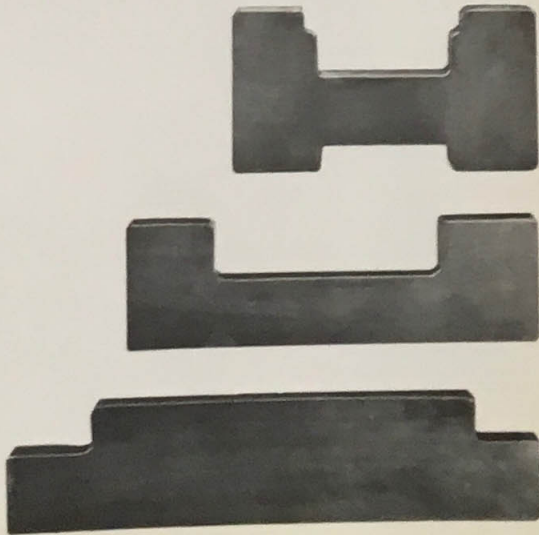
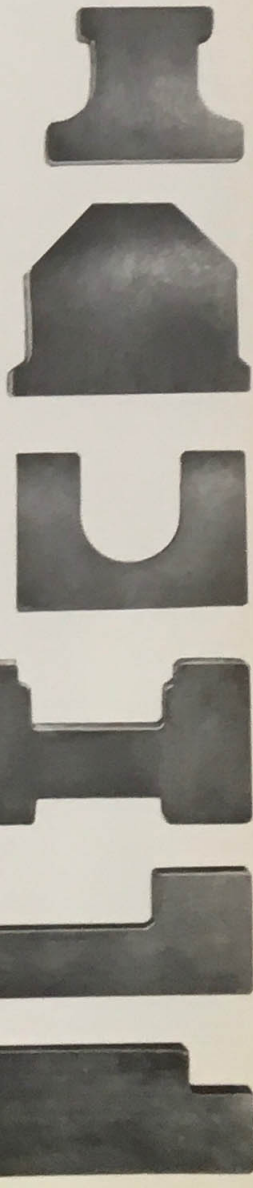
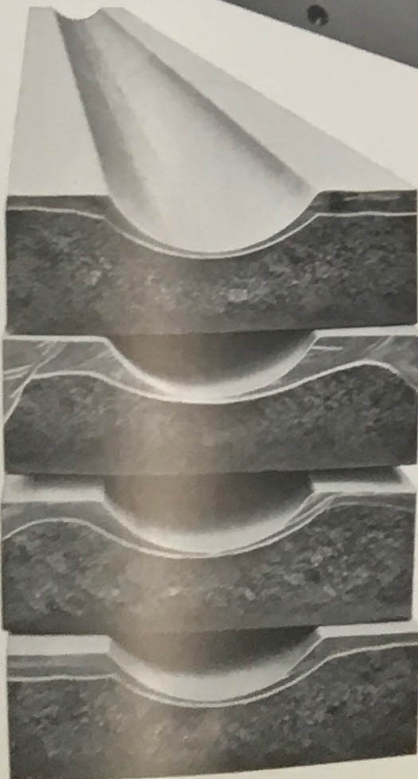
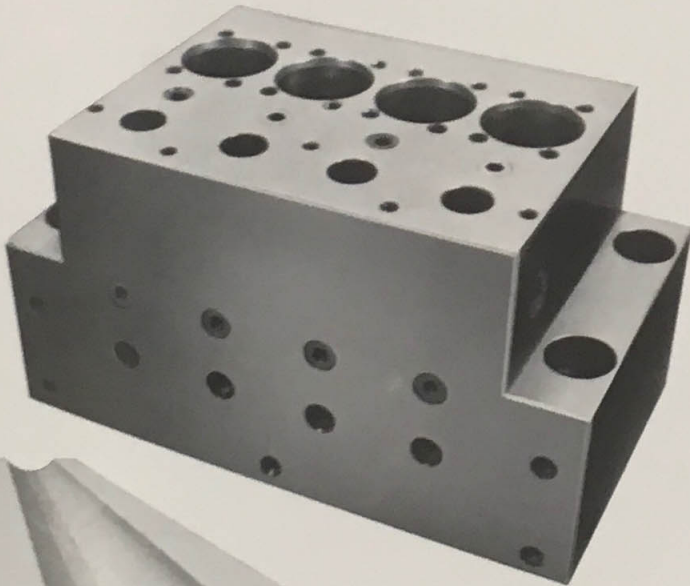
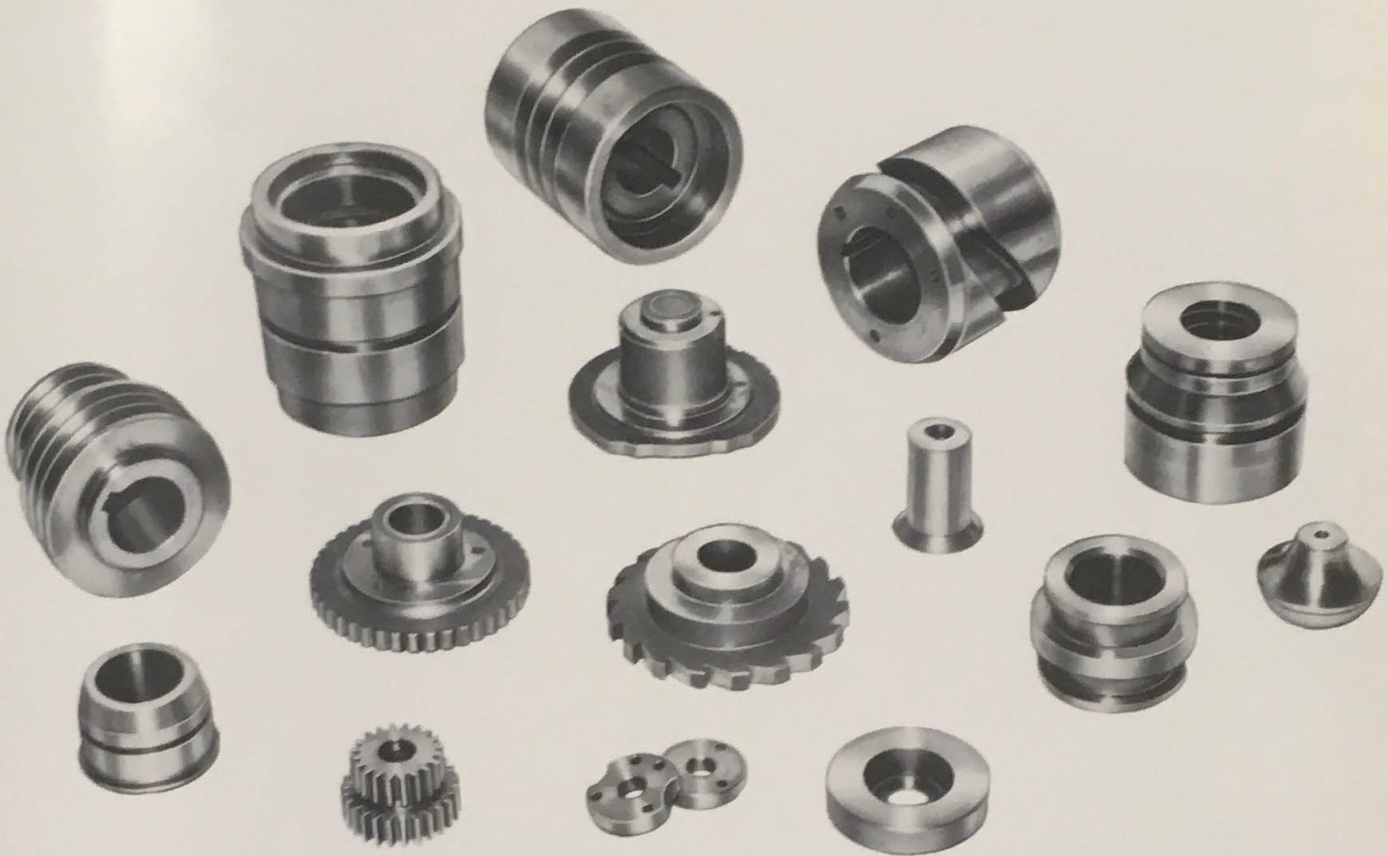
physical properties

Specific weight at 20 °C	kp/dm ³	appr. 7.3
Heat expansion (20—100 °C)	10 ⁻⁴ m/m grd	appr. 0.8
Thermal conductivity at 20 °C	cal/cm grd s	0.10 to 0.12

technological properties

very good	machinability micro finish galvanizing properties resistance to rust and acids damping capabilities
good	sliding properties wear resistance enameling properties hardening properties
structure	fine grain, oil- and pressure tight, free of blowholes and inclusions
surface	free of sand, increased tool life
stress	equal cooling, little danger of warpage

applications	components of continuously cast gray iron
Hydraulics and pneumatics	control blocks, valve housings, slide castings, regulator housings, regulator and pressure cylinders, regulator pistons, slide plates, rotors for compressed air motors.
Pumps and compressors	pump housings, rotary pistons for compressors, oil pump gears.
Machine tools	machine supports, mounting tables, guide rails, prism rails, cam bars, locating stop bars, scale bars, taper gibs, spindle sleeves, spacer bushings, spindle nuts, housing pins, plungers, gearbox shafts, gear wheels, gear racks, pulley discs, interchangeable gears.
Tool and mold manufacture	molds for pressure die casting, glass molds, dies, frames, supports for masterpieces on copying lathes, scales for precision tools, norm elements for preparatory work, base plates, angle bars, round tables, marking plates.
Printing machines	frames, ductor rolls, paint knives, control bars for paint regulation.
Automotive industry	bearing caps, valve tappets, valve guides, cylinder liners, shock absorber pistons, gears for waterpumps, distributor housings for brake fluid.
Other applications	gearing, mining machinery, chemical equipment, transporting equipment, lifting devices, machinery for iron and steel industry, die casting machines, sawing machines, machines for paper industry, ship building industry, textile machinery, parts for automatic machining such as: flanges, rings, bushings, unions.



NE-Metall-Strangguß

Continuously Cast Non-Ferrous Materials

Vergleich der mechanischen Eigenschaften von Sandguß und Strangguß bei Rotguß Rg 5

	Stangendurchmesser 60 mm—Rg 5			
	Streckgrenze in kp/mm ²	Zugfestigkeit in kp/mm ²	Dehnung in kp/mm ²	Brinellhärte in kp/mm ²
Sandguß	8 bis 10	15 bis 24	10 bis 18	60 bis 80
Strangguß	14,5	29,0	22,5	85

Richtwerte für Strangabmessungen aus Nichtisenmetallen beim horizontalen Stranggießverfahren

	Rundstangen	Durchmesser 12 bis 400 mm
	Rohre	Außendurchmesser 25 bis 300 mm, Wanddicke 5 bis 50 mm, kleinster Innendurchmesser 15 mm, mindestens 10% des Außendurchmessers
	Quadratstangen	Kantenlänge 20 bis 300 mm
	Platten, Bänder	Breite 20 bis 650 mm, Dicke >5 mm, mindestens 3% der Breite

Bei bestimmten Metallegierungen können sich die möglichen Minimalabmessungen verschieben.

Anwendungsbeispiele

Deckel, Buchsen, Hülsen, Ringe, Bolzen auf Stangendrehaufmaschinen gefertigt, Rundstangen für die Fertigung nahtloser Rohre auf Extrusionspressen, Weiterverarbeitung auf Reck- und Ziehbenken zu Bändern und Stangen, Warmpreßteile für Armaturen, Stranggußbänder für das Fertigwalzen in Warm- oder Kaltwalzwerken, Münzlegierungen werden als Stranggußbänder verarbeitet.

Comparison of mechanical properties of sand cast and continuously cast gunmetal ~ LG2 85/5/5/5

	Strand diameter 60 mm ~ LG2 85/5/5/5			
	yield point lb/in ²	tensile strength lb/in ²	expansion lb/in ²	hardness HB lb/in ²
sand casting	11 to 14	21 to 34	14 to 26	85 to 114
cont. cast material	21	41	32	121

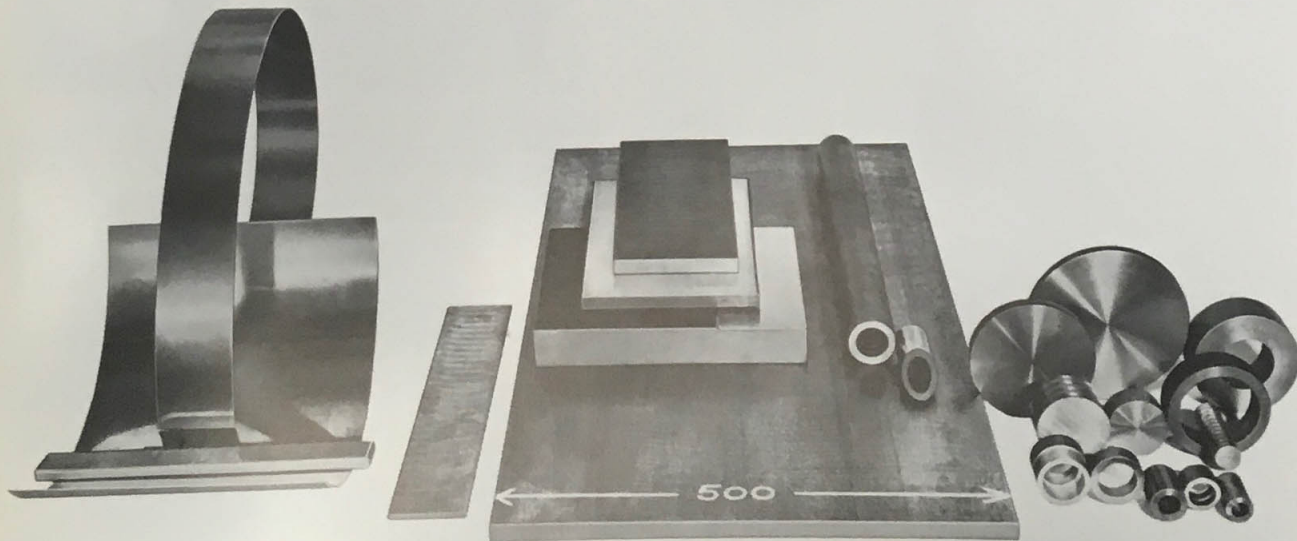
Approximate values for strand dimensions of continuously cast non-ferrous materials

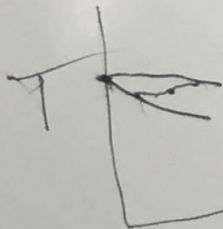
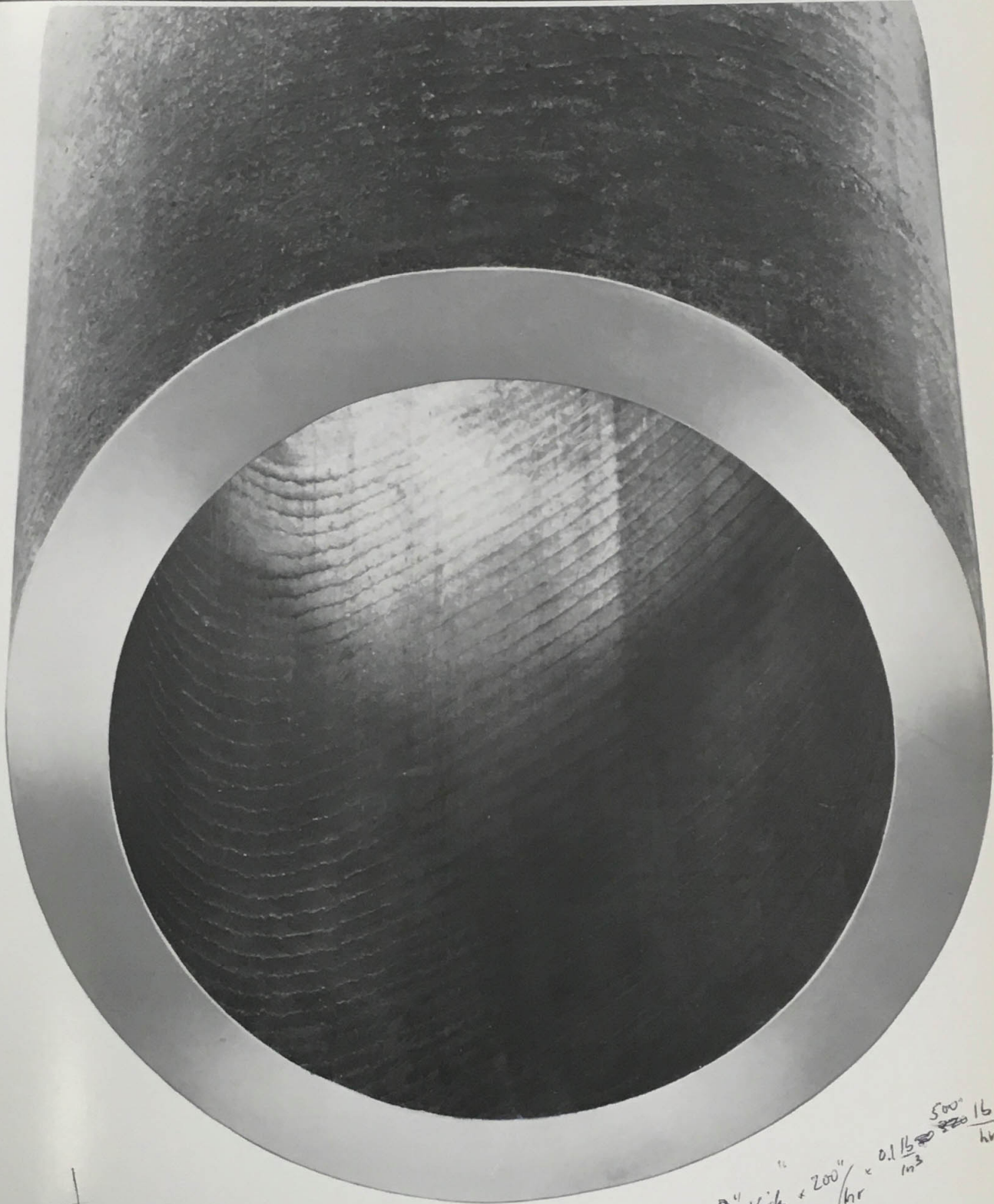
	Round bars	diameter 12 to 400 mm
	Tubes	OD 25–300 mm, wall thickness 5–50 mm, min. ID 15 mm, at least 10% of OD
	Square bars	edge length 20 to 300 mm
	Plates	width 20 to 650 mm, thickness >5 mm, at least 3% of width

With certain alloys minimum dimensions can be variable.

Examples for application

caps, bushings, sleeves, rings, billets — machined on automatic lathes, round bars for manufacture of seamless tubes on extrusion presses, processing to plates and rods on stretch and draw benches, hot forging of fittings, continuously cast plates for subsequent hot or cold rolling, continuously cast plates for coinage materials.





% Mg

25/650
180

32" wide $\frac{3}{4}$ " thick $\times 200'$ /hr $\times 0.1 \frac{lb}{in^3} = 500' \frac{lb}{hr}$
10,000 lb/day
50" x 1" x

Vertretungen

Representatives

Argentina: GMO. Gabelsberger & Cia. S.A.
Av. Belgrano 423/427
Casilla Correo Central 1068
Buenos Aires
Telefon: 34-7812/7905/4711
Telex: 012-2206

Australia: A.N.I. Australia Pty. Ltd.
Birnie Avenue
P.O. Box 105
Lidcombe 2141, N.S.W.
Telefon: 6482951
Telex: natind aa 20238

Brazil: Otto Wolff Do Brasil
Pca. Almirante Jaceguai, 76-1.º
Caixa Postal, 619-ZC-00
Rio de Janeiro-GB
Telefon: 252.-7779
Telegramm: Otwolf

España: Internacional Technica, S.A.
Torre de Madrid Planta 8, Nr. 3
Madrid 13
Telefon: 2418539-2485315
Telegramm: Intorre

France: J. Mignard Ingénieur E.S.F.
8, Rue Carnot
78 Saint-Cyr L'Ecole
Telefon: 923 18-20 and 923 18-21
Telex: 60043

India: C. A. Willner & Co. Private Ltd.
15, Richmond Road
P.O. Box 2559
Bangalore-25
Telefon: 50294

Italia: Dott. Luigi Colombo
Via Giuseppe Dezza, 43
20144 - Milano
Telefon: 487175-487187
Telex: 33360

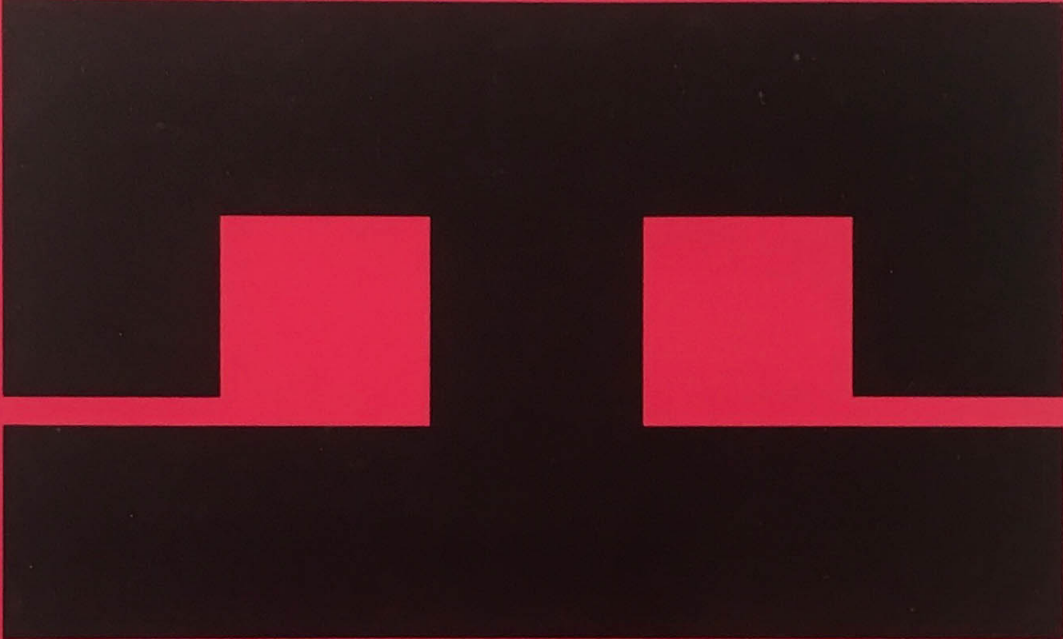
Japan/Nippon: K. Brasch & Co. Ltd.
New Kokusai Building Room 801
4 Marunouchi 3-Chome Chiyoda-Ku
Central P.O. Box No. 923
Tokyo
Telefon: 03 (211) 8521-8
Telex: 2502

Österreich: A. J. Gasser & Co.
Wien IV/50
Brucknerstraße 8
Telefon: 65 66 96
Telex: 01-1426

South Africa: Industrial Progress Company
409 Klamson House, 151 Commissioner Street
P.O. Box 2047
Johannesburg
Telefon: 22-2918
Telex: J 7685
Telegramm: Indproc

Suomi/Finland: Oy Diaco AB
P.O. Box 10 237
Helsinki
Telefon: 658055
Telex: 12-801

Sverige: G. & L. Beijer Aktiebolag
Norge: N. Vallgatan 70
Denmark: P.O. Box 325
20123 Malmö 1 (Sverige)
Telefon: 73560
Telex: 3122



Technica

**Horizontale Stranggießanlagen
Bauart Technica-Guss**

Fertigungsprogramm

**Horizontal Continuous Casting Plants
Technica-Guss design**

Production Program

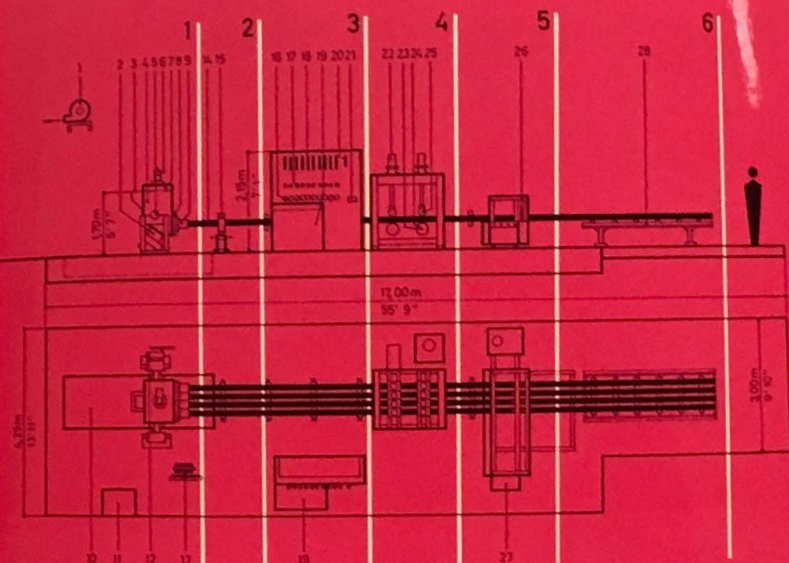
Horizontale Stranggießanlage,
Bauart Technica-Guss,
für Nichteisenmetalle,
Typ 200/140/80 VISNE bestehend aus:

Horizontal continuous casting plant,
design Technica-Guss
for non-ferrous metals,
type 200/140/80 VISNE consisting of:

1	Warmhalteofen mit Beheizungseinrichtung	holding furnace with heating unit
2	Rollenständer und Strangführungen	roll stands and strand supports
3	Steuerpult und Regel- und Kontrolleinheit	control panel
4	Zieheinrichtung mit Antrieben	drawing unit with drive system
5	Trenneinrichtung	cutting machine
6	Rollgang	roller conveyor
Maschinenteile:		parts of the plant:
1	Ventilator für die Brennerluft	fan for burner air supply
2	Induktor	inductor
3	Einfüllöffnung für die Schmelze	pouring spout for the liquid metal
4	Ofenkörper	furnace body
5	Ofenachse	furnace center line
6	Öl- oder Gasbrenner	oil or gas burner
7	Ofendeckel	furnace cover
8	Befestigungsvorrichtung für die Kühler	flange for attaching the coolers
9	Kühler	cooler
10	Ofengrube	furnace pit
11	Schaltschrank für den Induktor	control panel for the inductor
12	Wendegetriebe	turning gear
13	Wasseranschlußseinheit	cooling water return
14	Strang	strand
15	Rollenständer und Strangführung	roll stands and strand supports
16	Fernthermometer für Kühlwasser	thermometer for cooling water
17	Regeleinrichtung für Heizöl und Kühlwasser	control unit for oil and cooling water
18	Durchflußmesser für Kühlwasser	flow meter for cooling water
19	Steuerpult zur Zieheinrichtung	control panel of the drawing unit
20	Durchflußmesser für Heizöl	flow meter for oil
21	Wartungseinheit für Druckluft	compressed air control and filter unit
22	Druckluftzylinder	compressed air cylinder
23	Antrieb	drive system
24	Transportwalze	transport roller
25	Druckrolle	pressure roll
26	Sägeblatt	sawing blade
27	Steuerpult für die Trenneinrichtung	control panel for the cutting machine
28	Rollgang	roller conveyor
Nutzinhalt des Warmhalteofens		effective capacity of the holding furnace
Nettogewicht der Anlage		gross weight of the plant
Elektrischer Anschlußwert ohne Induktionsanlage		electric connected value without induction plant
Elektrischer Anschlußwert der Induktionsanlage		electric connected value of the induction plant
100 kVA		100 kVA

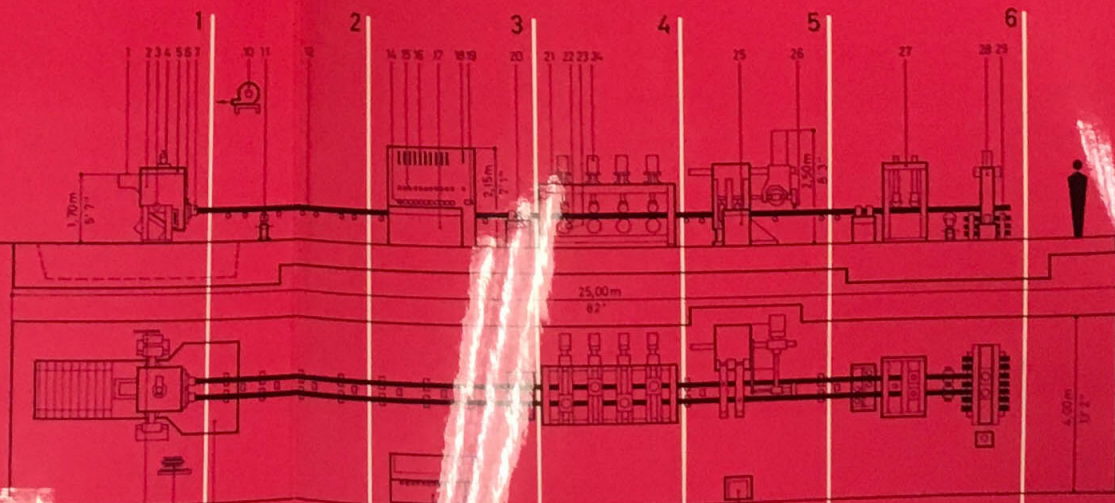
Horizontale Stranggießanlage, Bauart Technica-Guss,
für Nichtferrousmetalle, Typ 200/140,80 VISNE M 1:100

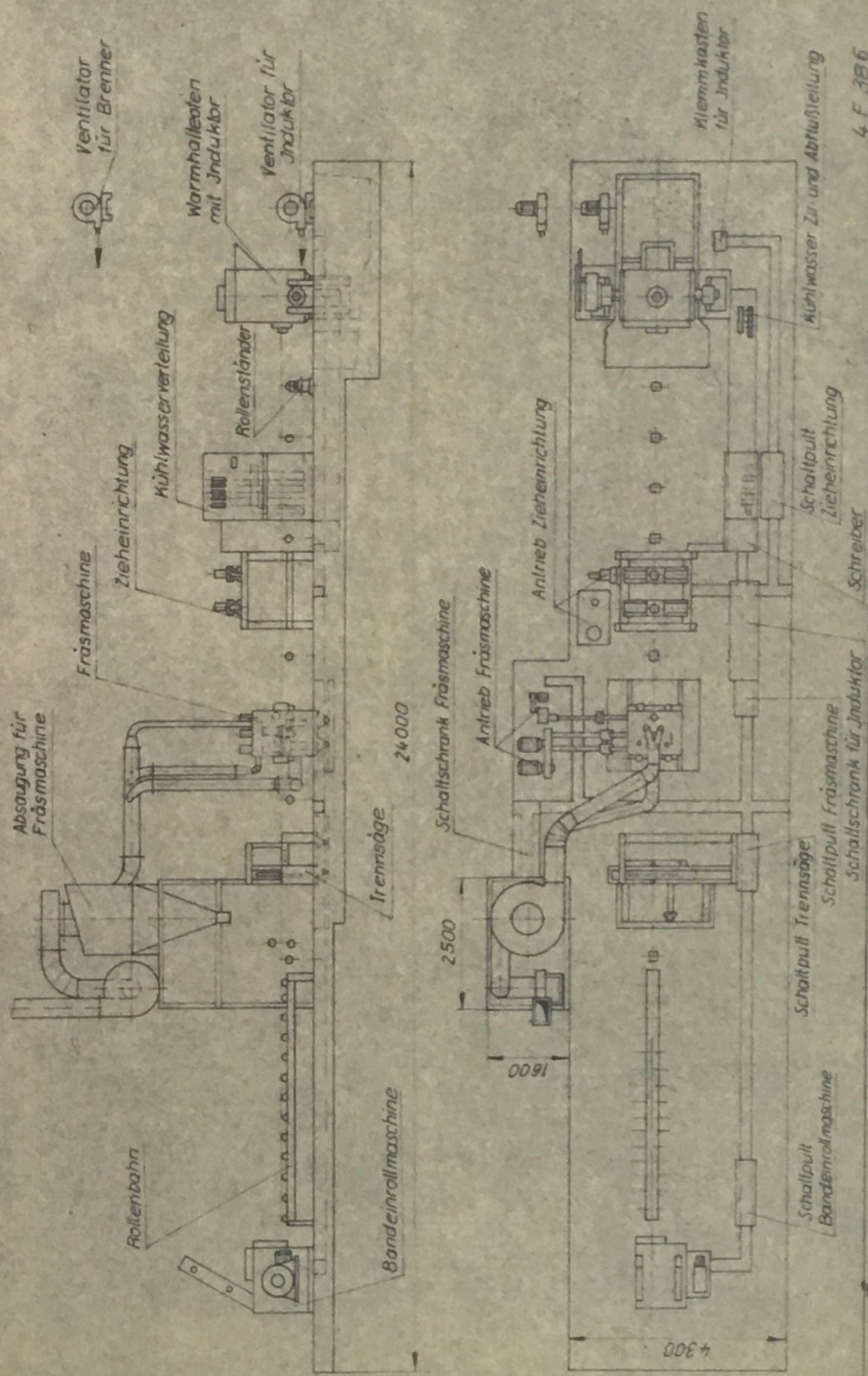
Horizontal continuous casting plant, design Technica-Guss
for non-ferrous metals, type 200/140,80 VISNE scale 1:100



Horizontale Stranggießanlage, Bauart Technica-Guss
für Gußeisen, Typ 400/250,80 VIVGB M 1:100

Horizontal continuous casting plant, design Technica-Guss
for gray iron, type 400/250,80 VIVGB scale 1:100





**Horizontale Stranggießanlage,
Bauart Technica-Guss
für Gußeisen,**

Typ 400/250/80 VIVGB bestehend aus:

**Horizontal continuous casting plant,
design Technica-Guss
for cast iron,**

type 400/250/80 VIVGB consisting of:

1	Warmhalteofen mit Beheizungseinrichtung	holding furnace with heating unit
2	Rollenständer und Strangführungen	roll stands and strand supports
3	Steuerpult und Regel- und Kontrolleinheit	control panel
4	Zieheinrichtung mit Antrieben	drawing unit with drive system
5	Trenneinrichtung	cutting machine
6	Abbrechvorrichtung	break-off unit
Maschinenteile:		parts of the plant:
1	Einfüllöffnung für die Schmelze	pouring spout for the liquid metal
2	Ofenkörper	furnace body
3	Ofenachse	furnace center line
4	Öl- oder Gasbrenner	oil or gas burner
5	Ofendeckel	furnace cover
6	Befestigungsvorrichtung für die Kühler	flange for attaching the coolers
7	Kühler	cooler
8	Wendegetriebe	turning gear
9	Wasseranschlusseinheit	cooling water return
10	Ventilator für die Brennerluft	fan for burner air supply
11	Rollenständer und Strangführung	roll stands and strand supports
12	Strang	strand
13	Ofengrube	furnace pit
14	Fernthermometer für Kühlwasser	thermometer for cooling water
15	Regeleinrichtung für Heizöl und Kühlwasser	control unit for oil and cooling water
16	Durchflußmesser für Kühlwasser	flow meter for cooling water
17	Steuerpult zur Zieheinrichtung	control panel of the drawing unit
18	Durchflußmesser für Heizöl	flow meter for oil
19	Wartungseinheit für Druckluft	compressed air control and filter unit
20	Seitenführung	side guidance
21	Druckrolle	pressure roll
22	Antrieb	drive system
23	Transportwalze	transport roller
24	Druckluftzylinder	compressed air cylinder
25	Steuerpult für die Trenneinrichtung	control panel for the cutting machine
26	Trennscheibe	cutting disc
27	Klemmvorrichtung	clamping unit
28	Abbrechvorrichtung	break-off unit
29	Behälter mit Stranggußstangen	stillage for cast bars
Nutzinhalt des Warmhalteofens		effective capacity of the holding furnace
1,5 t		1,5 t
Nettogewicht der Anlage		net weight of the plant
ca. 20 t		approx. 20 t
Elektrischer Anschlußwert		electric connected value
ca. 62 kw		approx. 62 kw
Anschlußwert einer elektrischen Beheizung		connected value of the electric heating
100 kVA		100 kVA

Technica-Guss

ist Hersteller von horizontalen Stranggießanlagen für Gußeisen und Nichteisenmetalle.

Dieses Informationsangebot soll Ihnen die Auswahl der für Sie günstigsten Anlage erleichtern und Ihnen in kurzer Form eine Übersicht über unser Fabrikationsprogramm geben. Die große Auswahl ermöglicht es, die für Sie am besten geeignete Stranggießanlage zusammenzustellen.

Horizontale Stranggießanlagen Bauart Technica-Guss bestehen aus der Grundausrüstung und dem Zubehör.

Referenzlisten

Referenzen stehen in allen Teilen der Welt zur Verfügung und können auf Wunsch bekanntgegeben werden.

Dieses Angebot ist freibleibend. Änderungen, die aufgrund unserer Forschungsarbeiten dem Fortschritt dienen, sind möglich.

Grundausrüstung

Zieheinrichtung mit Antrieben

Die Zieheinrichtung ist in einer schweren Stahlkonstruktion ausgeführt. Der Strang wird durch Rollen angetrieben. Diese Rollen sind auswechselbar zur Herstellung von unterschiedlichen Querschnitten und Metallen. Der Anpreßdruck des Stranges auf die Antriebsrollen läßt sich stufenlos verändern, so daß für jeden Strangquerschnitt der richtige Anpreßdruck eingestellt werden kann. Während des Produktionsvorganges ist der Strang immer sicher geführt, so daß keine ungünstigen Querbewegungen entstehen können.

Es stehen zwei Arten von Antrieben zur Verfügung, der Normalantrieb und der Spezialantrieb. Der Normalantrieb ist ein bewährter, preiswerter Antrieb und geeignet für Vollprofile aus Gußeisen und Nichteisenmetallen mit nicht zu geringen Wanddicken. Der Spezialantrieb ist ein elektronisch gesteuerter Präzisionsantrieb mit einer maximalen Frequenz von über 800 Schaltungen je Minute. Dieser Antrieb ist nach den neuesten Erkenntnissen der Elektronik konstruiert für alle Formate und Legierungen und notwendig für Rohre aus Gußeisen und Nichteisenmetallen, Gußeisenstangen unter 20 mm $\varnothing$, dünnwandige Profile aus Reinkupfer und Profile aus anderen Nichteisenmetallen, welche weiter durch Walzen, Ziehen oder Recken verformt werden. Außerdem ist der Spezialantrieb zu empfehlen für dünnwandige Profile aus Gußeisen und Nichteisenmetallen.

Die Umstellung der Zieheinrichtung von Einstangproduktion auf Mehrstrangproduktion ist sehr einfach und kann in ca. 30 Min. durchgeführt werden. Lager und Rollen der Zieheinrichtung sind wassergekühlt, soweit erforderlich.

Steuerschrank für die Zieheinrichtung

Der Steuerschrank dient zur Einstellung sämtlicher Ziehvorgänge. Die Bewegung des Stranges setzt sich zusammen aus einer Wartezeit und einer Ziehzeit. Die Ziehzeit entspricht einer bestimmten Ziehlänge. Die Ziehlänge und Wartezeit sind stufenlos einstellbar. Handbedienung ist möglich.

Bei Mehrstranganlagen für Gußeisen besitzt jeder Strang eine separate Steuerung. Für Nichteisenmetalle werden separate Steuerungen und Zentralsteuerungen angeboten. Bei einer Zentralsteuerung werden alle Stränge mit gleicher Geschwindigkeit transportiert. Bei hohen Produktionsleistungen ist eine separate Steuerung vorteilhaft, weil dann jeder Strang mit optimaler Geschwindigkeit in Abhängigkeit von den Abkühlungsbedingungen hergestellt werden kann.

Technica-Guss

is a manufacturer of horizontal continuous casting plants for gray cast iron and non-ferrous materials.

This informative quotation is meant to facilitate your choice of the optimum plant for your requirements, and to give you a general survey of our production program.

Our horizontal continuous casting plants consist of the basic, and additional equipment.

Reference list

Reference lists can be sent upon request.

This informative quotation is without any obligation to Technica-Guss. Technical developments may at all times be incorporated.

Basic Equipment

Drawing units with drive system

The drawing unit is constructed from heavy steel sections. The strand is driven by rollers, which are interchangeable for various metals and strand dimensions. The pressure of these rollers can be varied according to strand dimensions, and to draw the strands safely during production.

Two kinds of drive systems are used. The normal system, suitable for the production of gray cast iron and non-ferrous materials of a medium section, is a proven and economic system. The special drive is electronically controlled with a precision of more than 800 impulses per minute. This unit is engineered according to the latest knowledge of electronics for all dimensions and alloys, and is necessary for gray iron and non-ferrous tubes, grey iron round bars under $\frac{3}{4}$ ", thin walled profiles of pure copper, and other non-ferrous profiles which are subsequently rolled, extruded or stretched.

The conversion from one strand to multi-strand production can be easily realized with our machines in approximately 30 minutes. All bearings and rollers are watercooled if necessary.

Control panel for drawing unit

All settings for the drawing process are governed by the control panel. The strand movement consists of the holding time and drawing length. The drawing time corresponds to a certain drawing length. Drawing length and holding time are infinitely variable. Manual operation is possible.

Multistrand machines for gray cast iron have separate controls for each strand. Separate as well as single controls are available for non-ferrous materials. With single controls, a synchronized strand movement is achieved. Where high production rates are required, separate controls are recommended, because each strand can be produced at the optimum speed in relation to the cooling conditions.

Regel- und Kontrolleinheit für Kühlwasser, Druckluft und Heizöl, falls notwendig.

Die Regel- und Kontrolleinheit ist ausgerüstet mit Wasserdurchflußmeßgeräten, Fernthermometern und Regelventilen. Diese Einrichtung ist vormontiert und muß lediglich an die Versorgungsleitungen angeschlossen werden. Somit werden die Installationsarbeiten wesentlich vereinfacht.

Rollgänge und Strangführungen

Rollgänge und Strangführungen werden der Zieheinrichtung vor- und nachgeschaltet und dienen zur Auflage und Führung des Stranges.

Spezialtransportrollen

Die Spezialtransportrollen sind auswechselbar entsprechend den herzustellenden Strängen und Metallen.

Bild 1 Zieheinrichtung mit Steuerschrank und Regel- und Kontrolleinheit

figure 1 drawing unit with control panel



Warmhalteöfen mit Beheizungseinrichtung

Der Betrieb einer Stranggießanlage setzt voraus, daß das flüssige Metall mit der gewünschten Temperatur, Zusammensetzung und Menge zum Eingießen in den Warmhalteöfen zur Verfügung steht.

Alle Warmhalteöfen sind so konstruiert, daß sie sehr schnell gegen einen Ersatzofen ausgewechselt werden können. Sie werden komplett geliefert mit Beheizungseinrichtung, hochwertiger Spezialisolierung und feuerfester Ausmauerung, einem Deckel und einer Vorrichtung zum Anbringen der Kühler. Die Warmhalteöfen sind mit einem Schwenkgetriebe ausgerüstet, so daß sie leicht um die Mittelachse geschwenkt werden können. Dadurch wird der Anbau der Kühler, das Reinigen und das Zustellen des Ofens wesentlich erleichtert.

Für Gußeisen werden grundsätzlich tiegellose Warmhalteöfen benutzt, welche mit Öl, Gas oder Elektroenergie beheizt sein können. Bei der Herstellung von Vollstangen aus Gußeisen gehört eine Öl- oder Gasbeheizung zur Grundausrüstung des Warmhalteofens. Bei der Herstellung von Rohren aus Gußeisen ist eine elektrische Beheizung des Warmhalteofens notwendig und in der Grundausrüstung enthalten. Diese Beheizung ist außerdem vorteilhaft bei der Herstellung von komplizierten Profilen. Eine elektrische Beheizung kann an jeden tiegellosen Warmhalteofen nachträglich angebracht werden. Die Vorteile einer elektrischen Beheizung sind eine bessere und gleichmäßigere Temperaturregulierung des Eisens, längere Haltbarkeit der Ofenausstampfung, geräuschloser Betrieb usw. Der Nutzinhalt eines Warmhalteofens für Gußeisen beträgt 1500 kg.

Regulating and control panel for cooling water, compressed air, oil

This regulating and control panel is equipped with water flow meters, water thermometers and regulating valves. The unit is preassembled and needs only to be connected to the supply lines. This facilitates installation.

Support rolls and strand guidance

These rolls are placed in front of, and behind the drawing unit to support and guide the strand.

Special transport rolls

The special transport rolls are interchangeable to accommodate different dimensions and metals.

Holding furnace with heating system

Basic requirement for the operation of a horizontal continuous casting plant is the provision of liquid metal with the desired temperature, composition, and quantity to be poured into the holding furnace.

All holding furnaces can easily be exchanged with a spare furnace. They are delivered complete, including heating system, high grade insulation, refractory, furnace cover, and flanges for the adaption of the coolers. The holding furnaces are also equipped with a gearbox in order to revolve them around their axis. This facilitates cleaning, relining and the adaption of coolers.

For gray cast iron, non crucible type holding furnaces with an effective capacity of 1.5 tons are used, which can be heated by gas, oil or electricity. For the production of solid profiles, the holding furnaces are equipped with gas or oil burners. For the production of gray iron tubes, electric heating of the holding furnace is necessary, and part of the basic equipment. Furthermore, electric heating is advantageous when producing complicated profiles. All non crucible type holding furnaces have provisions for later adaption of electric heating units. The advantages of electric heating are a better temperature control of the liquid metal, increased refractory life, and the lack of irritating burner noises.

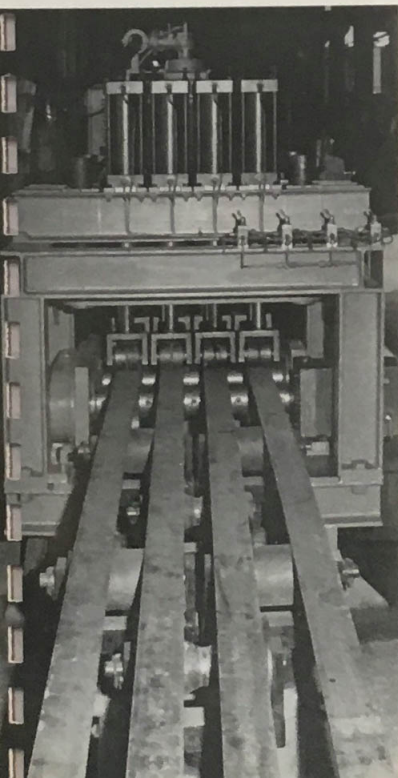
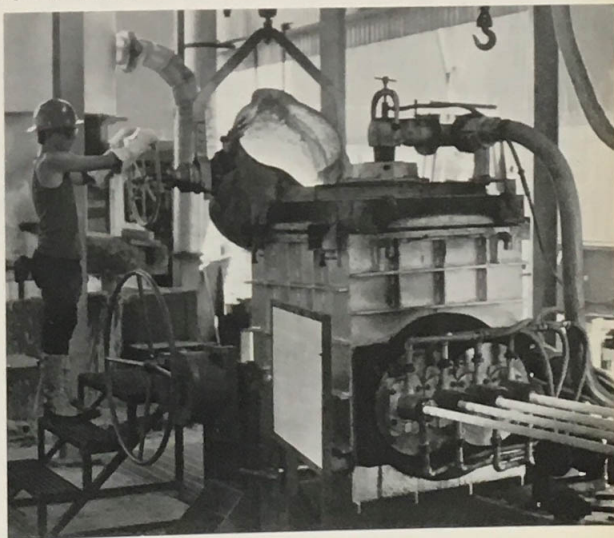


Bild 2 Rollgänge und Transportrollen
figure 2 roller conveyor and transport rolls

Bild 3 Warmhalteofen mit Beheizungseinrichtung
figure 3 holding furnace with heating unit



Für Nichteisenmetalle werden Warmhalteöfen mit Tiegel und ohne Tiegel verwendet. Tiegelöfen sind immer mit Öl oder Gas beheizt. Aus Tiegelöfen kann nur ein begrenztes Programm von Stranggußformaten hergestellt werden. Bei empfindlichen Legierungen besteht die Gefahr einer Gasaufnahme und bei Legierungen und Metallen mit hohem Schmelzpunkt kann der Tiegel vorzeitig verschleifen. Der Tiegelofen ist ein preiswerter Ofen. Der Nutzinhalt beträgt 500 kg Kupferlegierung.

Ein tiegelloser Warmhalteofen für Nichteisenmetalle ist immer mit einer elektrischen Beheizung versehen. Dieser Ofen ist für alle Nichteisen-Metallegierungen geeignet und für hohe Produktionsleistungen vorgesehen. Bei häufigem Legierungswechsel ist die Anschaffung von mehreren Ofenkörpern zweckmäßig. Der Nutzinhalt dieser Ofen beträgt 1 000 oder 1 500 kg Kupferlegierung. In Sonderausführung sind größere Warmhalteöfen vorgesehen.

Die elektrische Beheizung ist eine Netzfrequenz-Rinneninduktionsanlage. Sie besteht aus einem Induktor und einem Schaltschrank. Diese Einrichtung ist eine Spezialausführung für Technica-Guss und hat sich bereits an zahlreichen Stranggießanlagen bewährt, so daß ein einwandfreier Betrieb garantiert wird. Diese Induktionsanlage wird normalerweise zum dreiphasigen Anschluß an das Stromversorgungsnetz angeboten.

Falls die örtlichen Energieversorgungsbedingungen einen einphasigen Anschluß erlauben, ermäßigt sich der Preis der Schaltanlage. Für die feuerfeste Zustellung der Warmhalteöfen und Induktoren werden von uns nur hochwertige Produkte verwendet. Eine Erstausrüstung ist im Preis der Grundausrüstung inbegriffen. Die Haltbarkeit dieser feuerfesten Zustellung ist je nach Betriebsweise und Wanddicke der Zustellung sehr unterschiedlich. Als Richtwert geben wir an:

Gußeisen ca. 2 Monate
Nichteisenmetalle 6 bis 12 Monate

Werkzeugkasten

Der Werkzeugkasten enthält alle notwendigen Spezialwerkzeuge zum Bedienen der Anlage.

Handtrennschleifmaschine

Die pneumatische Handtrennschleifmaschine dient zum Einkerbigen bzw. Durchtrennen von kleinen Strängen. Die Maschine ist geeignet zur Aufnahme von Trennscheiben mit 235 mm Außendurchmesser. Es werden 20 Trennscheiben mitgeliefert.

Handbuch

Das Handbuch enthält alle notwendigen schriftlichen Unterlagen zum Bedienen der Anlage.

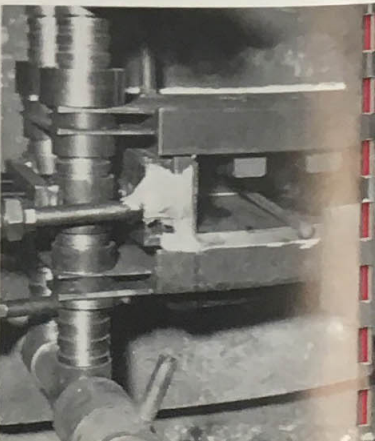
Bild 4
Trennmaschine



Bild 5
Abdruckvorrichtung



Bild 6
Zugstange



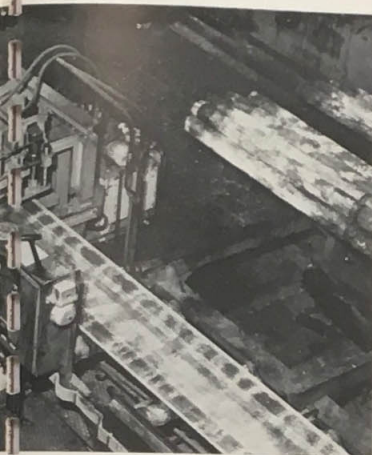


figure 4
cutting machine

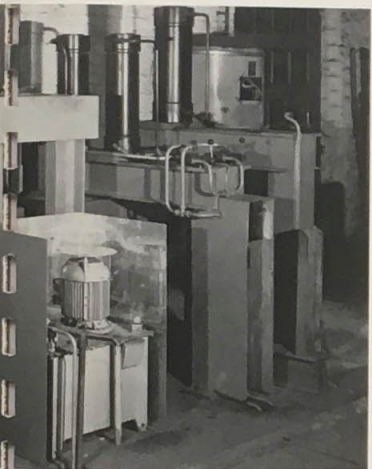


figure 5
break-off unit



figure 6
drawing bar

Holding furnaces for non-ferrous materials are of the crucible type with an effective capacity of 0.5 tons of copper, and are always heated by oil or gas. There are limitations as to the dimensions that can be produced with this type of holding furnace. Also, there is the danger of gas absorption, and the increased wear of the crucible when producing metals and alloys with high melting points.

The non crucible type holding furnace for non-ferrous materials is always electrically heated, and has an effective capacity of 1.5 tons of copper. These holding furnaces can be used for all alloys, and are designed for high production rates. When changing alloys frequently, the acquisition of a second holding furnace is recommended. Holding furnaces with a larger capacity can be offered on request.

The electric heating system is a line frequency channel type induction unit, and consists of an inductor and relevant control panel. These electric inductors have been especially designed for Technica-Guss, and have proven their reliability.

The units are normally delivered with 3-phase connection to supply. If local conditions permit the use of single phase connection, then the unit can be delivered as such. This would also lower the price of the control panel.

Only high grade refractories are used for lining the holding furnaces and induction units. An initial supply of refractories is included in the price of the basic equipment. Refractory life depends on the operating conditions and refractory thickness, and may therefore vary. On the average, refractory life can be expected to be:
2 months for gray cast iron
6-12 months for non-ferrous metals.

Toolbox

The toolbox contains all necessary tools to operate and service the plant.

Manually operated abrasive cutting tool

This tool is used to notch the strands before they are broken off or to cut strands of small diameters. The cutting discs have a diameter of approximately 9 inches. 20 spare discs are supplied.

Operation manual

It contains all necessary information for the operation and service of the plant.

Zubehör

Die Grundausrüstung einer Stranggießanlage wird ergänzt durch entsprechendes Zubehör. Die Auswahl des Zubehörs richtet sich nach der gewünschten Produktion.

Kühler

Um eine optimale Strangqualität zu erhalten, wird jeder Strang in einer separaten Kokille hergestellt. Diese Kokillen werden in die Kühler eingesetzt. Der Bedarf an Kühlern richtet sich nach den herzustellenden Abmessungen. Obwohl die Kühler eine große Haltbarkeit besitzen, ist es ratsam, Ersatzkühler zu bestellen. Die Kühler sind in einfacher Weise an dem Warmhalteofen befestigt. Ein Kühlerwechsel kann in kurzer Zeit stattfinden und dauert ca. 30 bis 60 Minuten.

Kokillen

Die Kokillen bestehen fast ausnahmslos aus hochwertigem Elektrografit. Der Bedarf an Grafitkokillen richtet sich nach dem herzustellenden Strangquerschnitt. Die Grafitkokillen werden in die Stranggußkühler eingesetzt. Nicht jede Grafitart ist für Stranggußkokillen geeignet. Wir prüfen laufend verschiedene Grafitarten und wählen die besten Grafitarten für Stranggußkokillen aus. Bei sorgfältiger Behandlung können die Grafitkokillen sehr oft und wirtschaftlich eingesetzt werden. Gebrauchte Grafitkokillen können zum Teil nachgearbeitet und auf diese Weise für andere Strangquerschnitte erneut eingesetzt werden. Die Bearbeitung des Grafites kann auf Drehbänken, Schleif-, Fräs- und Hobelmaschinen durchgeführt werden. Hierzu erhalten Sie von uns genaue Bearbeitungsrichtlinien.

Zur Inbetriebnahme und zur Produktion in den ersten Monaten empfehlen wir eine Erstausrüstung von Grafitkokillen mit der Anlage zu bestellen. Nach Bekanntgabe der Profile, welche Sie in den ersten Monaten mit der Stranggießanlage herstellen, unterbreiten wir Ihnen ein entsprechendes Angebot.

Die Haltbarkeit der Grafitkokillen ist sehr unterschiedlich und richtet sich nach den produzierten Abmessungen und Metallen.

Richtwerte:
Gußeisen 8–20 Stunden
Nichteisenmetalle 8–100 Stunden.

Nach Gebrauch können diese Kokillen zum Teil nachgearbeitet werden, so daß sich die Gesamtproduktionszeiten mit einer Kokille erheblich verlängern können.

Kokillenpresse

Die Kokillenpresse dient zum Einpressen der Grafitkokillen in die Rundkühler.

Zugstangen und Anziehzapfen

Die Zugstangen und Anziehzapfen können nach unseren Zeichnungen von Ihnen angefertigt werden, sie dienen zum Anfahren der Anlage und werden immer wieder benutzt.

Trenneinrichtungen

Für die Stranggießanlagen stehen verschiedene Trenneinrichtungen zur Verfügung. Bei Gußeisen werden die Stränge grundsätzlich eingekerbt und dann abgebrochen. Das Einkerbieren der Stränge kann mit einer Handtrennschleifmaschine erfolgen oder mit einer fahrbar angeordneten Trennschleifmaschine. Diese Trennschleifmaschine erleichtert das Trennen der heißen Stränge wesentlich und ist bei einer Produktion von Strängen größeren Durchmessers notwendig. Kleinere Stränge können auch durch eine Handtrennschleifmaschine eingekerbt werden, obwohl zum Teil die Hitzebelastung des Bedienungsmannes sehr hoch ist. Bei Gußeisen werden die Stränge anschließend mit einer hydraulischen Abbrechvorrichtung abgebrochen.

Nichteisenmetall-Stränge müssen zum größten Teil völlig durchgetrennt werden. Es stehen Sägen zur Verfügung, welche synchron mit dem Strang angeordnet sind und für alle produzierten Nichteisen-Stränge geeignet sind. Kleine Nichteisenmetall-Stränge können mit der Handtrennvorrichtung getrennt werden.

Temperaturmeßgeräte

Zum Betrieb der Stranggießanlage ist es notwendig, das flüssige Metall vor dem Eingießen in den Warmhalteofen auf seine richtige Temperatur zu prüfen. Die hierfür benötigten Instrumente sind meist in den Gießereien vorhanden. Außerdem kann es von Vorteil sein, die Metalltemperatur im Warmhalteofen zu überwachen. Weiterhin ist vor allem bei Nichteisenmetallen die Messung der Austrittstemperatur der Stränge wichtig. Wir beraten Sie gerne über geeignete Meßeinrichtungen.

Additional Equipment

The basic equipment of the horizontal continuous casting plant is supplemented by the relevant additional equipment. The choice of this equipment will depend upon production requirements.

Coolers

In order to obtain optimum strand qualities, each strand is produced in a separate die. These dies are inserted into the cooler. The number of coolers to be used depends on the production requirements. Although the coolers have a high durability, we recommend ordering a set of spare coolers. The coolers are easily attached to the holding furnaces, and can be changed in about 30–60 minutes.

Dies

The dies used are high grade graphite dies, and the number required again depends on the production requirements. Not all types of graphite are suitable for use as die material. We constantly check various types of graphite and choose the kind best suited for our process. When given the necessary care, graphite dies can be reused, and when remachined, the dies can also be used again for different dimensions. The dies can be easily machined on lathes, milling machines, and grinding machines. Instructions for machining are given in the operation manual.

We recommend, however, to order the initial set of dies together with the horizontal continuous casting plant. When your production requirements are known, we will give you a detailed quotation for the dies.

Die life depends on the dimensions and materials produced.

Approximate life expectancy:
Gray cast iron 8–20 hours
non-ferrous materials 8–100 hours.

As mentioned above, dies can be partially remachined, which prolongs their total production time.

Hand operated screw type press

The press is used to insert the dies into the cooler, and extract them after use.

Starter and draw bars

Starter and draw bars can be made by you according to our drawings. These bars are used for the starter-up of the machine, and can always be reused.

Cutting equipment

Various cutting units can be offered together with our horizontal continuous casting plants. Gray iron strands are always notched and subsequently broken off. Notching the strands can be done with a hand operated cutting tool or with an automatic abrasive cutting saw. The automatic saw greatly facilitates the cutting operation, and is necessary for cutting large strands. Small strands can be cut with the manually operated cutting tool, although heat radiation from the strands can be annoying to the operator. Gray iron strands are broken off with a hydraulic break off unit.

Practically all non-ferrous strands must be cut completely. Automatic cutting saws, synchronized with the strand movement can be offered. These saws are suitable to cut all non-ferrous strands. Small non-ferrous strands can be cut with the manually operated cutting tool.

Temperature measuring equipment

When operating the horizontal continuous casting plant it is necessary to check the liquid metal for its correct temperature, before pouring it into the holding furnace. Most foundries have this equipment. Also, it may be advantageous to monitor the metal temperature in the holding furnace. Furthermore, it is important to check the strand exit temperature. We are able to advise you in all questions of temperature control.

Montage

Die Montage der Anlage setzt voraus, daß die Fundamente vorbereitet sind und die Anschlüsse der Versorgungsleitungen sich in der Nähe der Anlage befinden. Hierzu erhalten Sie bei Bestellung unsere genauen Fundamentpläne und Aufstellungszeichnungen. Versorgungsleitungen werden benötigt für Wasser, elektrische Energie, Preßluft und Heizöl oder Gas. Die notwendigen Verbindungs- und Anschlußleitungen sind vom Kunden bereitzustellen und unter Aufsicht unserer Monteure zu verlegen.

Die Montage der Anlage kann durch Ihr Personal erfolgen. Zur Montageleitung und zur Einarbeitung Ihres Personals entsendet Technica-Guss einen Ingenieur und einen Monteur. Die Zeit hierfür richtet sich nach der Größe der Anlage und beträgt gewöhnlich 3–4 Wochen. Die Verrechnung der Kosten für den Fachingenieur und den Monteur erfolgt gemäß unseren Montagebedingungen.

Bei Bestellung der Anlage wird ein Vertrag abgeschlossen, in dem sich Technica-Guss zu weiteren Beratungen verpflichtet und der Kunde sich verpflichtet, alle Informationen über das Stranggießen nur am Aufstellungsort der Anlage zu verwenden.

Produktionsprogramm

Das Produktionsprogramm der einzelnen Stranggießanlagen kann aus der Gesamtübersicht entnommen werden. In nachfolgender Tabelle ist das Produktionsprogramm aller Anlagen zusammengefaßt.

Richtwerte für Strangabmessungen

Profil		Gußeisen	Nichteisenmetall
Rundstange	Außendurchmesser	20–400 mm	12–400 mm
Rohr	Außendurchmesser	75–340 mm	25–300 mm
	Wanddicke	10– 50 mm	5– 50 mm
	Kleinster Innendurchmesser	25 mm	15 mm
Quadratstange	Kantenlänge	20–300 mm	mindestens 10% des Außendurchmessers
Rechteckstange			20–300 mm
Sonderprofil			
Platte	Breite	20–500 mm	20–500 mm
Band	Kleinste Wanddicke	15 mm	5 mm
			Mindestwanddicke ca. 4% der Breite

Abweichende Abmessungen auf Anfrage

Produktionsleistungen

Stranggießanlagen, Bauart Technica-Guss sind für hohe Produktionsleistungen konstruiert. Unsere Fachingenieure beraten Sie gern über die Produktionsleistungen unter Berücksichtigung Ihrer Betriebsbedingungen. Hierzu benötigen wir von Ihnen Angaben über Zusammensetzung, Abmessung und Menge der herzustellenden Stranggußprodukte.

Installation of the plant

The erection of the horizontal continuous casting plant requires the preparation of the foundations and connections to energy sources to be in the vicinity. When ordering a machine you will receive all necessary data and drawings to set up the foundation. Sources are needed for water, electricity, compressed air, heating oil or gas. Connecting pipes are to be supplied by the customer and must be fitted under the supervision of our fitters.

Setting-up the machine can be done by your personnel. For supervision and training of your operators, Technica-Guss will send one engineer and one fitter for a period of 3—4 weeks, depending on the size of the machine. Charges for our engineer and fitter will be according to our fitting conditions.

The sale of a horizontal continuous casting plant is subject to a Know-How agreement between the customer and Technica-Guss, in which Technica-Guss agrees, for a certain period of time, to pass on to the customer any development work which has been done after the installation of a horizontal continuous casting plant, and which furthermore commits the customer to keep this information secret.

Production program

The complete range of horizontal continuous casting plants is listed on the enclosed production program sheet.

Basis for Strand Dimensions

profile		gray cast iron	non-ferrous materials
round bar	outside diameter	3/4"-16"	1/2"-16"
	outside diameter	3"-13, 1/2"	1"-12"
tube	wall thickness	13/32"-2"	3/16"-2"
	minimum inside diameter	1"	5/8"
			minimum 10% of outside diameter
square bar	edge length	3/4"-12"	3/4"-12"
rectangular bar			
special profile			
strip	width	3/4"-20"	3/4"-20"
	smallest wall thickness	5/8"	3/16"
			minimum approx. 4% of width

Deviating dimensions on request

Production rates

Technica-Guss horizontal continuous casting plants are designed for high production rates. Our engineers will be pleased to advise you on the subject of production rates in relation to your operating conditions. This requires, however, that the customer supplies Technica-Guss with the necessary data regarding metal composition, dimensions, and tonnage of the projected continuously cast products.

Zubehör

Additional Equipment

Ungefährer Platzbedarf
in m

Nr.
No.

Abbrech- vorrich- tung 13)	Trennsäge abrasive cutting saw		Trennsäge automatisch für NE-Metalle	Donnpresse	Temperatur- meßeinrichtung	Appr. Floor Space	
break-off unit 13)	halbautomatisch 14) semi automatic 14)	handbetätigt hand operated	automatic cutting saw for non-ferrous materials	screw press	temperature measuring unit		
				▲	A	4,5 × 12,0 14'—9" × 39'—6"	1
▲		▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	2
▲		▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	3
▲		▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	4
▲		▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	5
▲	▲	▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	6
▲	▲	▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	7
▲	▲	▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	8
▲	▲	▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	9
▲	▲	▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	10
▲	▲	▲	▲ 15)	▲	A	4,5 × 25,0 14'—9" × 82'—0"	11
▲	▲	▲	▲ 15)	▲	A	4,5 × 25,0 14'—9" × 82'—0"	12
▲	▲	▲	▲ 15)	▲	A	4,5 × 25,0 14'—9" × 82'—0"	13
▲				▲	A	4,5 × 12,0 14'—9" × 39'—6"	14
▲		▲	▲	▲	A	4,5 × 23,0 14'—9" × 75'—6"	15
▲		▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	16
▲		▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	17
▲		▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	18
▲	▲	▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	19
▲	▲	▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	20
▲	▲	▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	21
▲	▲	▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	22
▲	▲	▲	▲	▲	A	4,5 × 25,0 14'—9" × 82'—0"	23
▲	▲	▲	▲ 15)	▲	A	4,5 × 25,0 14'—9" × 82'—0"	24
▲	▲	▲	▲ 15)	▲	A	4,5 × 25,0 14'—9" × 82'—0"	25
▲	▲	▲	▲ 15)	▲	A	4,5 × 25,0 14'—9" × 82'—0"	26
			▲	▲	A	4,8 × 15,0 15'—9" × 49'—3"	27
			▲	▲	A	4,8 × 15,0 15'—9" × 49'—3"	28
			▲	▲	A	4,8 × 15,0 15'—9" × 49'—3"	29
			▲	▲	A	4,8 × 16,0 15'—9" × 52'—6"	30
			▲	▲	A	5,0 × 25,0 16'—6" × 82'—0"	31

Zubehör

Additional Equipment

Ungefährer Platzbedarf
in m
Appr. Floor Space

Nr.
No.

Abbrech- vorrich- tung 13)	Trennmaschine abrasive cutting saw		Trennsäge automatisch für NE-Metalle	Dornpresse	Temperatur- meßeinrichtung		
break-off unit 13)	halbautomatisch 14) semi automatic 14)	handbetätigt hand operated	automatic cutting saw for non-ferrous materials	screw press	temperature measuring unit		
				▲	A	4,5×12,0 14'-9"×39'-6"	1
▲		▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	2
▲		▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	3
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▲		▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	5
▲	▲	▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	6
▲	▲	▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	7
▲	▲	▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	8
▲	▲	▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	9
▲	▲	▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	10
▲	▲	▲	▲ 15)	▲	A	4,5×25,0 14'-9"×82'-0"	11
▲	▲	▲	▲ 15)	▲	A	4,5×25,0 14'-9"×82'-0"	12
▲	▲	▲	▲ 15)	▲	A	4,5×25,0 14'-9"×82'-0"	13
▲				▲	A	4,5×12,0 14'-9"×39'-6"	14
▲		▲	▲	▲	A	4,5×23,0 14'-9"×75'-6"	15
▲		▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	16
▲		▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	17
▲		▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	18
▲	▲	▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	19
▲	▲	▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	20
▲	▲	▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	21
▲	▲	▲	▲	▲	A	4,5×25,0 14'-9"×82'-0"	22
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▲	▲	▲	▲ 15)	▲	A	4,5×25,0 14'-9"×82'-0"	24
▲	▲	▲	▲ 15)	▲	A	4,5×25,0 14'-9"×82'-0"	25
▲	▲	▲	▲ 15)	▲	A	4,5×25,0 14'-9"×82'-0"	26
			▲	▲	A	4,8×15,0 15'-9"×49'-3"	27
			▲	▲	A	4,8×15,0 15'-9"×49'-3"	28
			▲	▲	A	4,8×15,0 15'-9"×49'-3"	29
			▲	▲	A	4,8×16,0 15'-9"×52'-6"	30
			▲	▲	A	5,0×25,0 16'-6"×82'-0"	31



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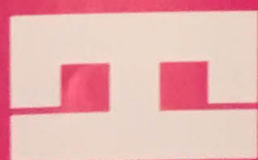
80 Pompton Avenue Verona, New Jersey 07044

Telephone: 201 239-6951

Canadian Office:

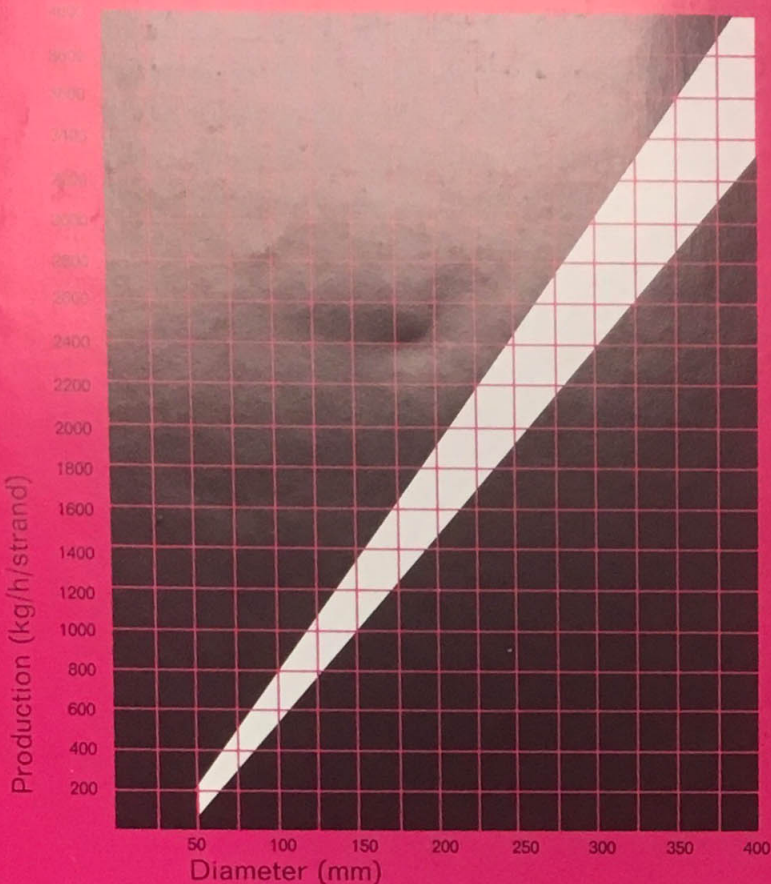
210 Westcroft Road Beaconsfield, Québec

Telephone: 514 695-2727 Telex: 120 146



Technica

**Horizontal
Continuous Casting Plants
Technica-Guss Design**



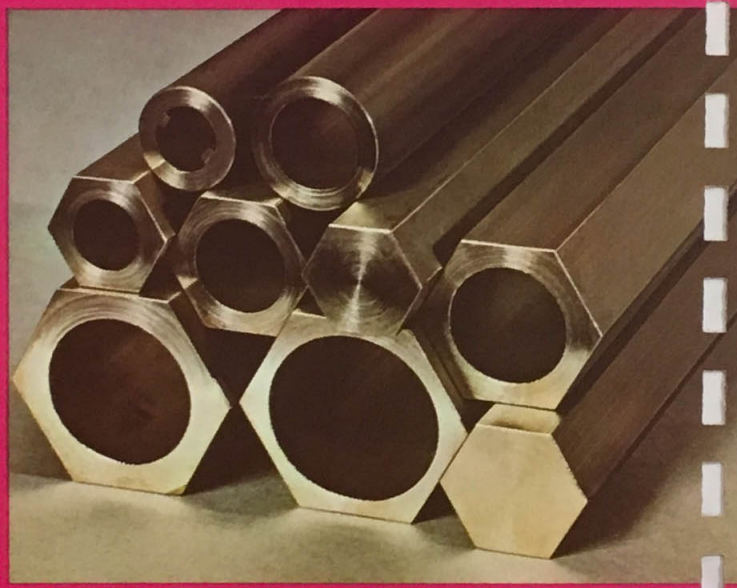
Production Diagram

Production rates for round bars over 50 mm ϕ of copper-alloys.

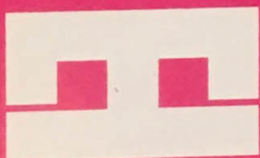
The production rates relate to one strand. In multistrand production the production rates increase according to the number of strands. The indicated values are approximate values and can vary according to working conditions. Guarantees cannot be claimed.



continuously cast material, brass 58, 3% Pb, unmachined



continuously cast material, brass 58, 3% Pb, machined

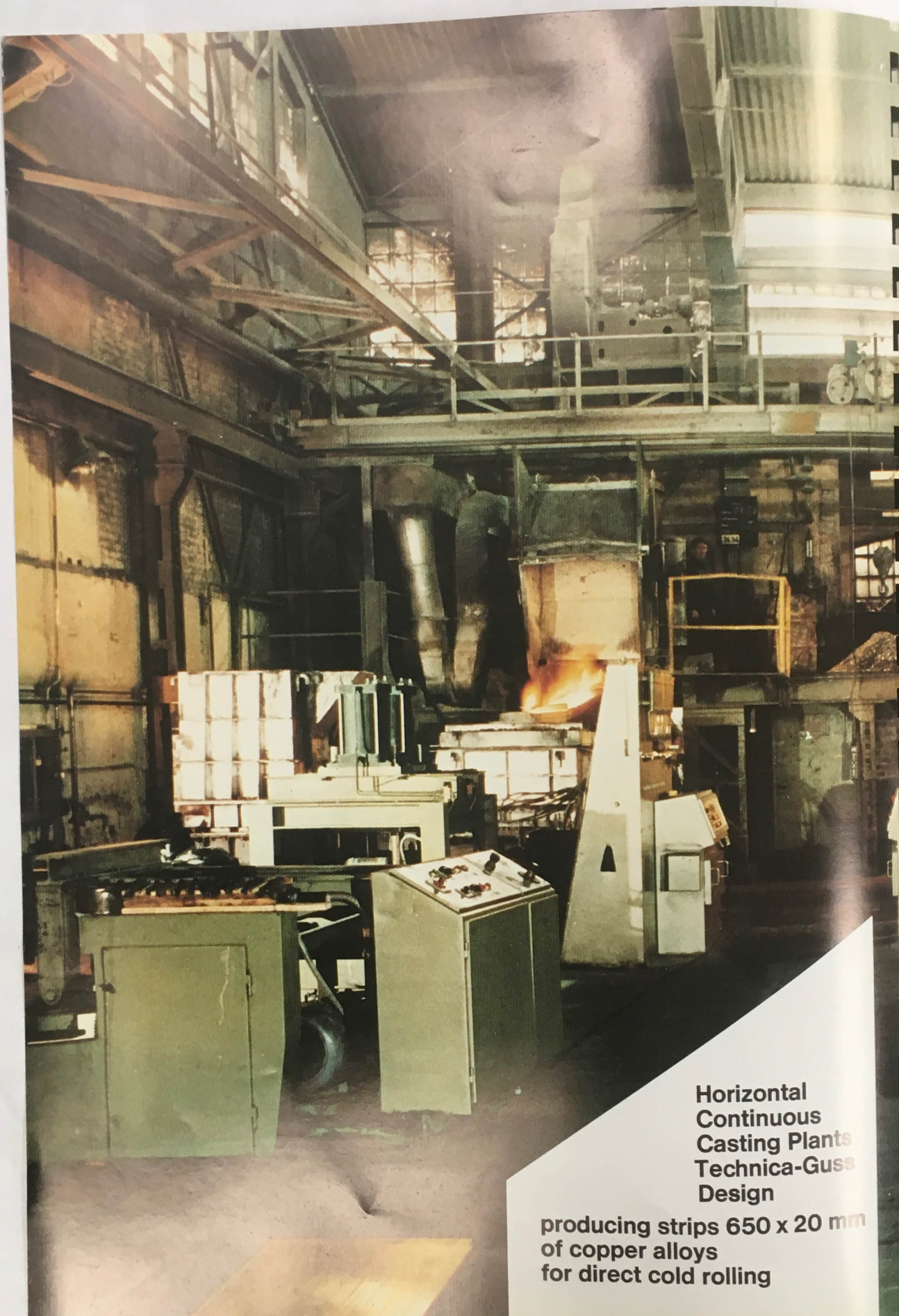


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**Horizontal
Continuous Casting Plants**
Technica-Guss Design



**Horizontal
Continuous
Casting Plants
Technica-Guss
Design**

**producing strips 650 x 20 mm
of copper alloys
for direct cold rolling**





continuous casting — milling — cutting — coiling

dimension: 650x20 mm

alloys: brass, bronze, nickel-silver, cupro-nickel

production:

3000 t - 5000 t/year with 3 shift working

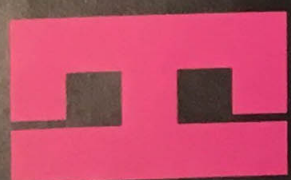
direct operatives: 1 man per shift



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**Horizontal
Continuous Casting Plants**

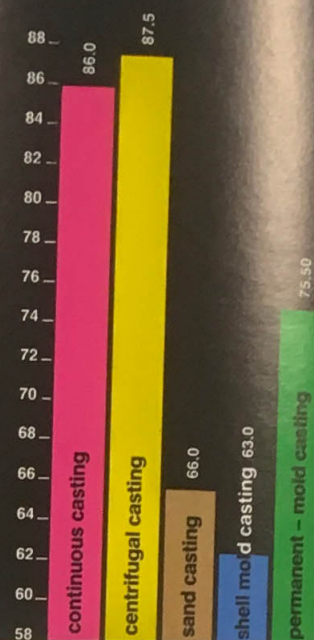
Technica-Guss Design



tensile strength δ_B kp/mm²



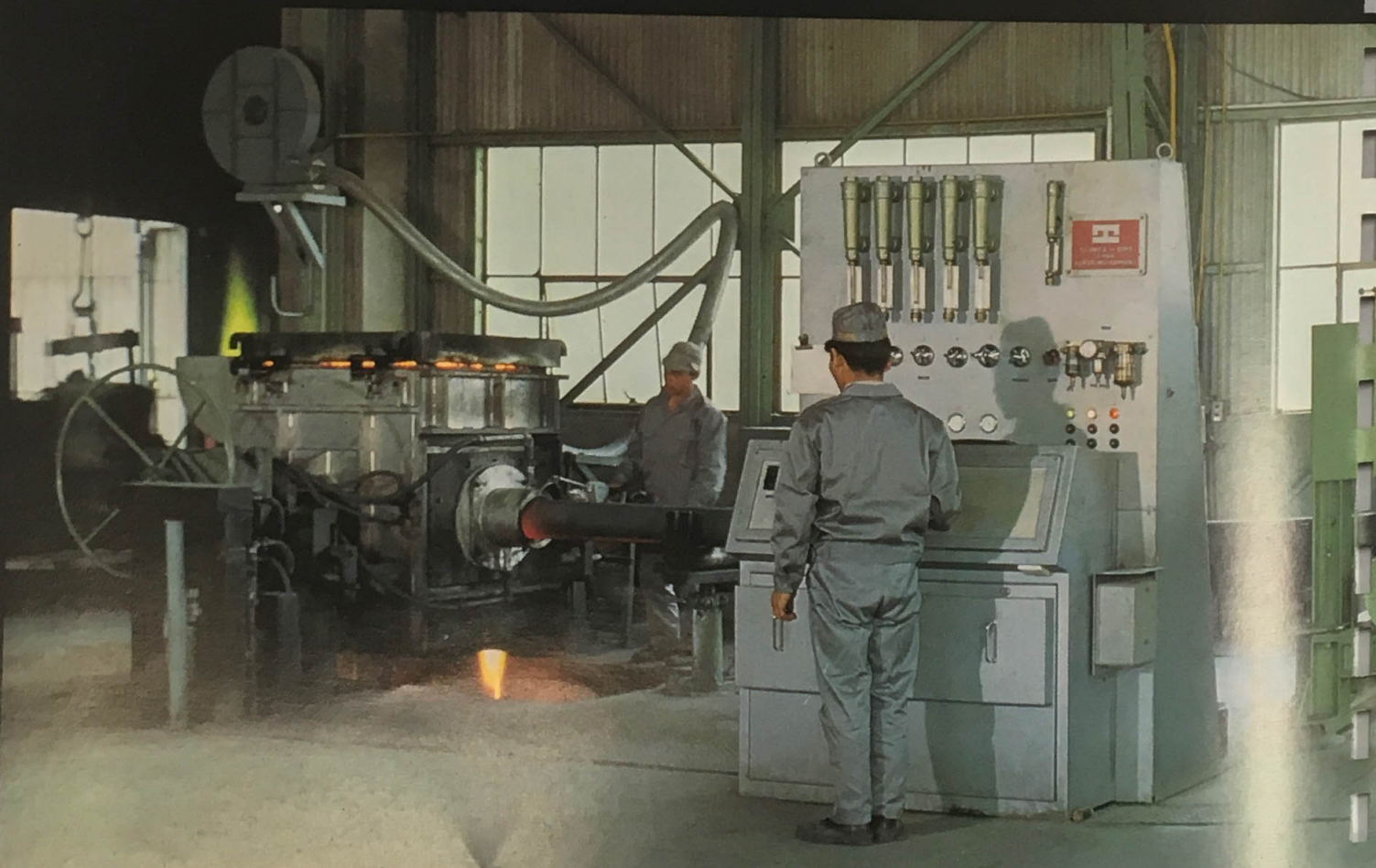
breaking tension δ_S %



Brinell hardness HB 10/500 kp/mm²

Physical properties of a tube 190/150 mm ϕ in Rg 10, produced on a horizontal continuous casting plant, design Technica-Guss, in comparison to other casting methods (customer's test result).

Horizontal continuous casting plant, design Technica-Guss, type 200/65/25 VISNB producing a tube 200/160 mm diameter in copper alloy



holding furnace

strand

cooler, die

control panel

Horizontal continuous casting plant, design Technica-Guss, type 200/65/25 VISNB

production range:

round bars, tubes, strips and profiles for free-cutting machining of bronze, brass alloys and other alloys for bearings, rings, guide bars, gear-wheels, valves, rails etc.

dimension:

round bars and tubes up to 200 mm diameter, strips up to 250 mm width.

production:

20—100 t/month with 1 to 2 shift working.

holding furnace:

gas or oil heated.

drawing unit:

electromechanical for round bars or electronic for round bars and tubes.

direct operatives:

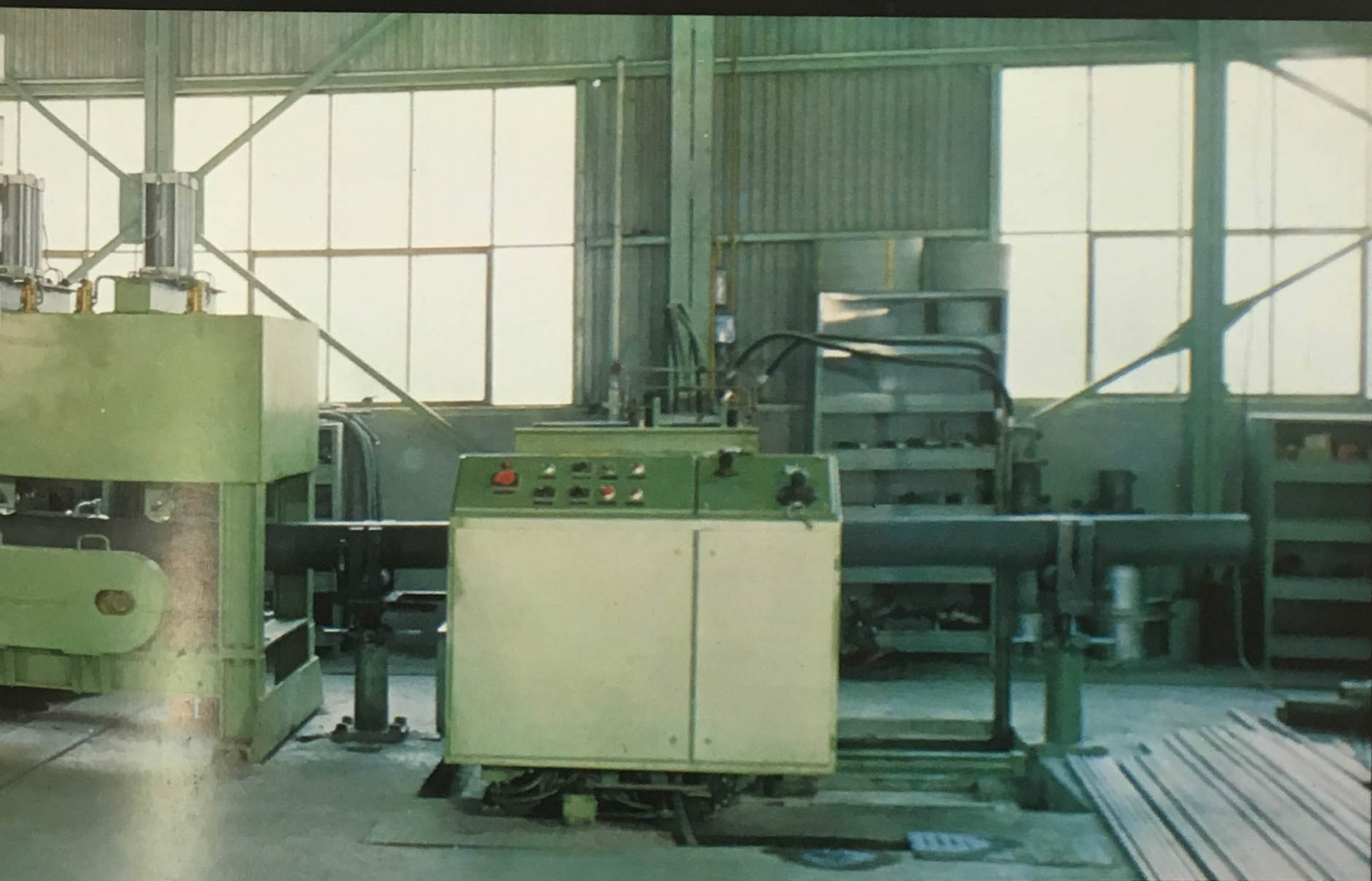
1 to 2 men per shift.

advantages:

the most economic horizontal continuous casting plant for metal foundries, working economically even with small production quantities. The quality of the produced bars is superior to other casting methods.



Technica



drawing unit

rollstands

saw

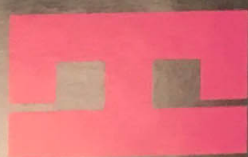


continuously cast material unmachined

continuously cast material machined



continuously cast material machined



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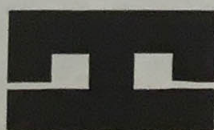
layout spa
printed in West-Germany
Richterdruck Würzburg

Einsatz horizontaler Stranggießanlagen für NE-Metalle

von Dipl.-Ing. H. A. KRALL, VDG, und H. A. KOCH, Ing. (grad.) VDG, Würzburg

Überreicht durch:

Technica-Guss GmbH



87 Würzburg 7
Friedrich-Koenig-Straße 4
Telefon (09 31) 59 60 91
Telex 68 781 tguss

Horizontale Stranggießanlagen werden für unterschiedliche Produktionszwecke eingesetzt. In diesem Bericht werden die Möglichkeiten beschrieben, welche dieses Verfahren in Verbindung mit bestimmten Maschinentypen heute bietet (Abb. 1, 2, 3). Es werden Richtwerte mitgeteilt und zwei Wirtschaftlichkeitsberechnungen durchgeführt. Auf Grund der Erläuterungen ist es möglich, die für einen bestimmten Fall zutreffenden Verhältnisse zusammenzustellen und die entsprechenden Vergleiche durchzuführen.

Allgemeines

Verglichen mit anderen Form- und Gießverfahren ist das Stranggießverfahren dadurch gekennzeichnet, daß das hergestellte Produkt länger ist, als die dazu verwendete Gießform. Die Gießform wird dabei üblicherweise mit Kühler oder Kokille bezeichnet. Entsprechend der Anordnung der Längsachse der Kühleröffnung auf der Eintrittsseite des flüssigen Metalls in den Kühler kennt man vertikale und horizontale Stranggießanlagen; über die Arbeitsweise der

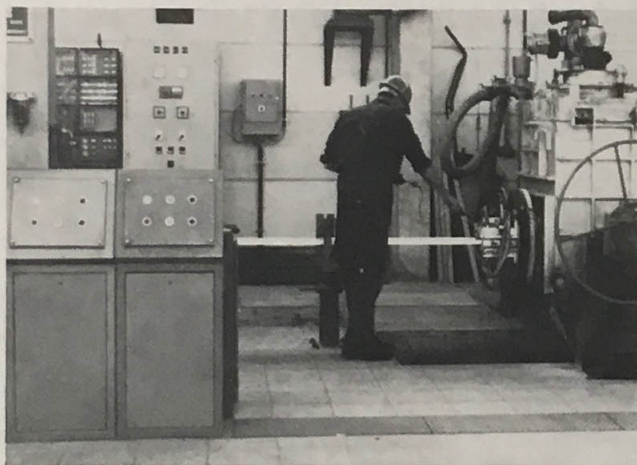


Abb. 1. Horizontale Stranggießanlage, elektrisch beheizter Warmhalteofen mit Kühler und auftretendem Strang (Werkbild: Technica-Guss GmbH, Würzburg)

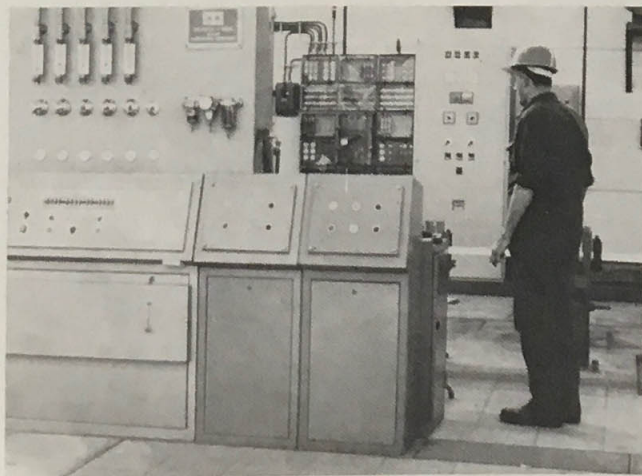


Abb. 2. Horizontale Stranggießanlage, Steuer- und Überwachungseinrichtungen für Schmelzofen, Warmhalteofen, Zieheinrichtung und Kühlwasserkreisläufe

horizontalen Stranggießanlage wurde in einer früheren Arbeit bereits berichtet (1).

Das Stranggießen gewinnt immer mehr an Bedeutung, da dieses Verfahren den Rationalisierungsbestrebungen der Gußerzeuger entgegen kommt durch hochproduktive, kontinuierliche Arbeitsweise. Nach anfänglichen Schwierigkeiten konnten sich dabei horizontale Stranggießanlagen in den letzten zwölf Jahren immer mehr in den Betrieben durchsetzen.

Ausschlaggebend für die Entscheidungen der Unternehmer über den Einsatz einer Stranggießanlage in einem Produktionsbetrieb ist die Wirtschaftlichkeitsberechnung für die Stranggießanlage im Zusammenhang mit den Möglichkeiten der Einsparung von Kosten bei der Weiterverarbeitung der hergestellten stranggegossenen Produkte im Vergleich zu anderen Gießverfahren. Außerdem sind mögliche Qualitätsverbesserungen (2, 3) zu berücksichtigen und eventuell Vorteile durch Verwendung von preiswerten metallischen Einsatzstoffen und Abfällen, die jetzt eventuell nicht mehr an ein fremdes Unternehmen verkauft werden müssen, sondern im eigenen Werk eingeschmolzen werden können.

Anwendung in der Industrie

Für die industrielle Anwendung der horizontalen Stranggießanlagen werden ständig neue Gebiete erschlossen. In den hier genannten Fertigungszeilen haben sich diese Anlagen bereits bestens bewährt.

Herstellung von Bändern bis 650 mm Breite zur Weiterverarbeitung in Kaltwalzwerken (4)

Wirtschaftliche Vorteile ergeben sich durch die Verringerung der Fertigungszeiten und die Einsparung von Warmwalzwerken und dem notwendigen Zubehör. Auch im Vergleich zum Gießen dünner Bänder in Standkokillen ist das Herstellen dieser Bänder im Stranggießverfahren wesentlich wirtschaftlicher und qualitätsmäßig vorteilhafter, da sie bei der Weiterverarbeitung einen hohen Verformungsgrad zulassen und die Oberflächen relativ sauber sind (Abb. 4). In Münzanstalten werden in zunehmendem Maße Stranggießanlagen eingesetzt zur Verarbeitung von Kupfer-Nickel-Legierungen und anderen Metallen (Abb. 5) (5). Auch Bronze und Neusilber als schwer warmverformbare Legierungen werden vorteilhaft auf Stranggießanlagen in Form von dünnen Bändern hergestellt. Auch bei der Verarbeitung von Messing ergeben sich wirtschaftliche Vor-

Tabelle 1. Vergleiche verschiedener Fertigungsverfahren zur Herstellung von Bändern aus Kupferlegierungen zur direkten Weiterverarbeitung in Kaltwalzwerken

Verfahren	Vergleich der Fertigungszeiten		
	Gießen	Fräsen u. Warmwalzen	Gesamt
Gießen von Walzblöcken in Dauerkokille — Warmwalzen — Fräsen	1,1	0,9	2,0
Gießen von Walzblöcken auf einer halbkontinuierlichen Stranggießanlage — Warmwalzen — Fräsen	0,7	0,6	1,3
Gießen und Fräsen von Bändern auf einer horizontalen Stranggießanlage (+ Fräsen)	1,0	—	1,0

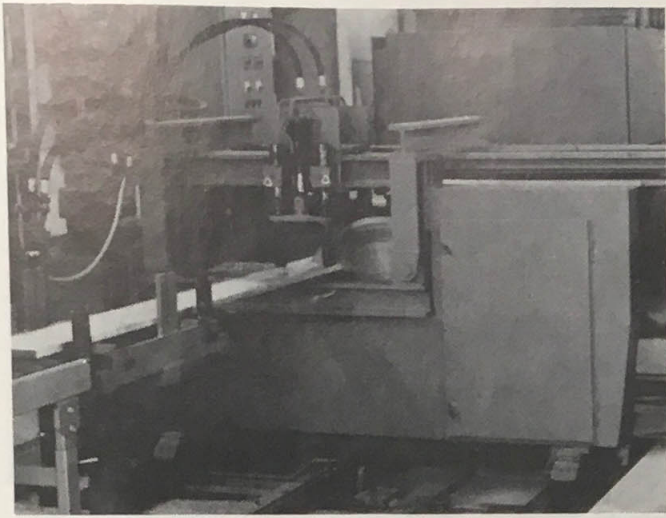


Abb. 3. Horizontale Stranggießanlage, Kaltkreissäge synchronisiert mit der Strangabzugsgeschwindigkeit beim Trennen des hergestellten Stranges

teile, u. a. durch niedrigere Fertigungszeiten im Gegensatz zu den bisher üblichen Verfahren des Gießens von Warmwalzblöcken (Tabelle 1).

Herstellung von Preßbolzen unterschiedlicher Durchmesser als Vormaterial für Strangpressen

Die Herstellungskosten der Preßbolzen (Abb. 6) auf horizontalen Stranggießanlagen sind gering. Der Ausschußanteil gegenüber anderen Gießverfahren ist wesentlich reduziert, da beim horizontalen Stranggießen beim Einfließen der Schmelze in den Kühler mit einem geschlossenen System gearbeitet wird und die Gefahr des Eindringens von Schmiermitteln oder Oxyden in den Strang nicht vorhanden ist.

Herstellung von Warmpreßteilen aus Strangguß-Rundstangen und Profilen aus Messing (Abb. 7);

Herstellung von Vollstangen, Rohren, Bändern und Profilen in Kundengießereien (Abb. 8).

Diese Produkte werden anschließend spanabhebend bearbeitet zur Anwendung im Maschinenbau (Abb. 9).

Herstellung von Rohren oder Vollstangen aus Kupfer zur Weiterverarbeitung in Rohrwalzwerken (Abb. 10).

Herstellung von Stranggußstangen kleineren Durchmessers zur Weiterverarbeitung in Walzwerken und Drahtziehmaschinen (Abb. 11).

Auf Grund der vielseitigen Möglichkeiten des horizontalen Stranggießverfahrens werden in Zusammenarbeit mit dem Stranggießanlagenhersteller laufend neue Anwendungsgebiete erschlossen.

Legierungen

Eine Auswahl der Nichteisenmetall-Legierungen, welche zur Zeit auf horizontalen Stranggießanlagen produziert werden, ist in Tabelle 2 dargestellt. Den größten Produktionsanteil haben die Kupferlegierungen. Chrom- und Nickelgehalte beeinträchtigen die Lebensdauer der üblicherweise verwendeten Grafitkokillen. Deshalb werden Legierungen mit Chromanteilen und Kupfer-Nickel-Legierungen mit über 30 % Nickel in nur geringem Maße auf Stranggießanlagen verarbeitet.

Abmessungen

Zur Zeit werden mit horizontalen Stranggießanlagen überwiegend die in Tabelle 3 angeführten Abmessungen gegossen. In absehbarer Zeit werden horizontale Stranggießanlagen auch für größere Abmessungen hergestellt.

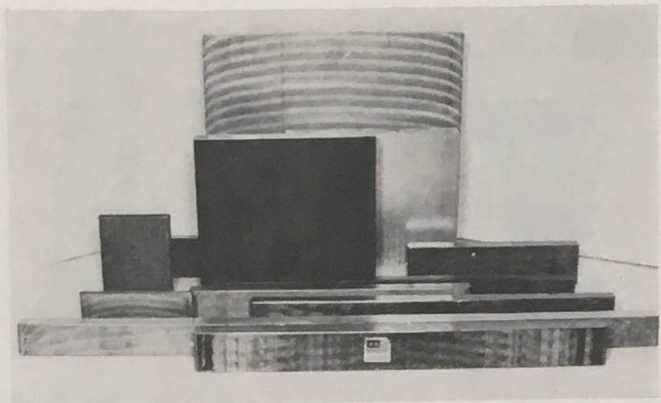


Abb. 4. Bänder aus verschiedenen NE-Metallen für die Weiterverarbeitung in Kaltwalzwerken

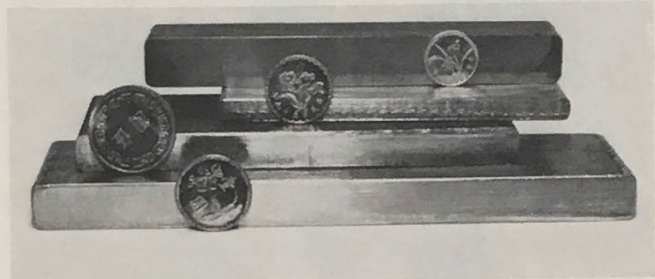


Abb. 5. Kaltwalzbänder aus Münzlegierungen



Abb. 6. Horizontale Stranggießanlage bei der Herstellung von Bolzen 200 mm Durchmesser, MS 58 Pb 3 zur Weiterverarbeitung auf Extrusionspressen und Ziehmaschinen



Abb. 7. Stranggußstange, 20 mm Durchmesser MS 58 und Warmpreßteile

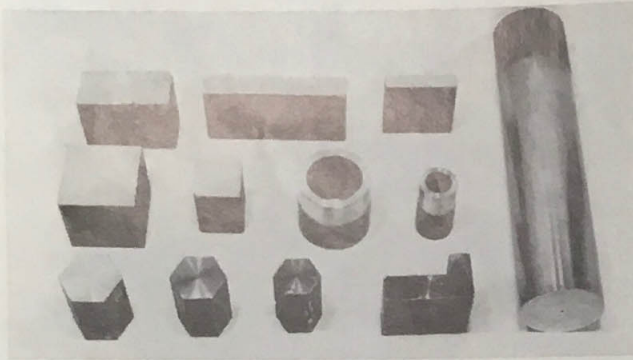


Abb. 8. Verschiedene Stranggußprofile aus Bronze und Rotguß

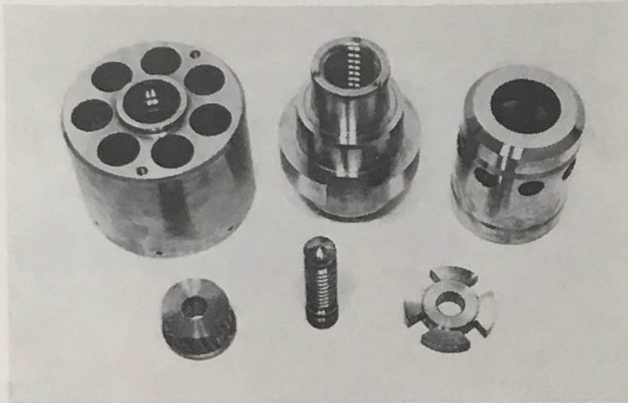


Abb. 9. Drehteile aus Bronze und Rotguß, hergestellt aus Strangguß-Vollstangen

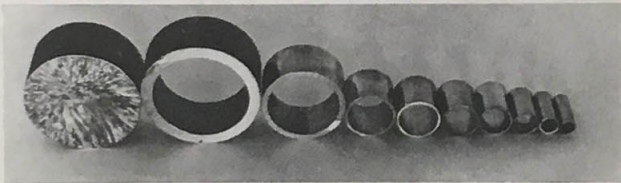


Abb. 10. Stranggußstangen 90 mm Durchmesser aus Reinkupfer, Weiterverarbeitung auf Rohrwalzwerken und Ziehmaschinen

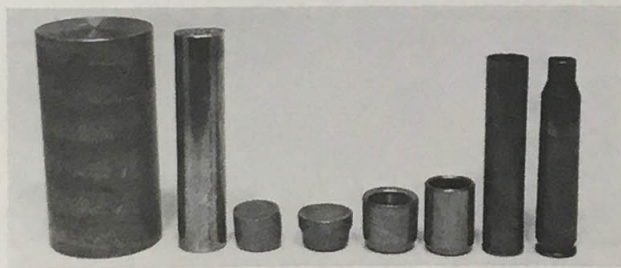


Abb. 11. Herstellung von Geschoßhülsen aus einer Stranggußstange 20 mm Durchmesser, MS 70

Bei der Produktion von Rohren (Abb. 12) und Platten ist ein bestimmtes Verhältnis bezüglich des Außendurchmessers, beziehungsweise der Breite zur Wanddicke einzuhalten.

Außerdem ist bei Rohren eine maximale Wanddicke zu berücksichtigen, falls der Dorn im Kühler, welcher die Innenkontur des Rohres bildet, ungekühlt ist.

Die Beachtung der Wanddicke ist deshalb notwendig, weil bei zu dünnen Wanddicken die Zugfestigkeit des erstarrten Strangquerschnittes im Kühler kleiner als die Reibung der Oberfläche des erstarrten Strangquerschnittes an dem Kühler ist. Als Folge davon treten beim Herausziehen des



Abb. 12. Rohre aus verschiedenen NE-Metall-Legierungen, hergestellt im horizontalen Stranggießverfahren

Tabelle 2. Eine Auswahl von Nichteisenmetall-Legierungen, welche auf horizontalen Stranggießanlagen verarbeitet werden können

Aluminium-Legierungen:

Aluminium-Silizium, Aluminium-Mangan, Aluminium-Zinn, Aluminium-Zinn usw.

Blei

Kupferlegierungen:

Reinkupfer, niedrig legierte Kupfersorten, Kupfer-Aluminium-Legierungen (Aluminium-Bronze, Mehrstoff-Aluminium-Bronze), Kupfer-Blei-Legierungen (Blei-Bronze), Kupfer-Nickel-Legierungen, Kupfer-Nickel-Zinn-Legierungen (Neusilber), Kupfer-Zinn-Legierungen (Messing, Sondermessing), Kupfer-Zinn-Legierungen (Bronze, Rotguß)

Silberlegierungen

Zinn

Zinn

Stranges aus dem Kühler Risse oder Fehlstellen auf und der Strang kann schließlich abreißen. Aus diesem Grunde und auch wegen der geringen Produktionsleistung sollten bei der Herstellung von Rundstangen nicht die kleinsten Durchmesser gewählt werden. Eine maximale Wanddicke bei Rohren sollte eingehalten werden, um die Gefahr eines Metalldurchbruches nach innen infolge ungenügender Kühlung zu vermeiden.

Profilkanten haben stets einen kleinen Radius, um Kantenrisse zu vermeiden und die Lebensdauer der Kühler zu verlängern.

Die Toleranzen der hergestellten Profile können aus Tabelle 4 entnommen werden. Die Maßabweichungen des Außendurchmessers von Rundstangen und Rohren sind im wesentlichen zurückzuführen auf Ungenauigkeiten bei der Bearbeitung von Kühlern und Kokillen und auf einen Verschleiß der Kühler und Kokillen bei längerer Produktionszeit. Die Maßabweichungen bei der Wanddicke von Rohren liegen innerhalb der DIN-Normen für stranggepreßtes Material. Diese Maßabweichungen sind zurückzuführen auf die Konizität des Dornes und die mögliche Verschiebung der Erstarrungsfront des Metalles im Kühler durch unterschiedliche Betriebsbedingungen während der Produktion. Abweichungen in der Wanddicke von Platten und Profilen mit Kanten können auftreten durch Ungenauigkeit in der Bearbeitung der verwendeten Kühler und Kokillen sowie durch Verzug von Kühlern und Kokillen infolge Wärmespannungen während der Produktion.

Produktionsleistungen

Die Produktionsleistung einer Stranggießanlage, bezogen auf die stündlich erzeugte Produktion, beeinflusst eine

Wirtschaftlichkeitsberechnung wesentlich. Die Produktionsleistungen hängen von mehreren Faktoren ab:

Anzahl der Stränge je Stranggießanlage,
Größe und Format der Stränge,
Zusammensetzung der Schmelze,
Temperatur der Schmelze,
Eigenschaften der Stränge in bezug auf die Weiterverarbeitung,
Abzieheigenschaften der Stranggießanlage,
Kühler- und Kokillenwerkstoff,
Kühler- und Kokillenkonstruktion,

Betriebsüberwachungseinrichtungen der Stranggießanlage. In Tabelle 5 sind Produktionsleistungen angegeben, welche sich jeweils auf einen Strang beziehen. Bei Mehrstrangbetrieb erhöht sich die Leistung entsprechend der Anzahl der Stränge einer Stranggießanlage. Als Bezugsgröße für die Ermittlung der Leistungsdaten wurden die Größe und das Format der Stränge und die Zusammensetzung der Schmelze berücksichtigt. Für die Leistungsdaten, die sich auf einen bestimmten Stranggießanlagentyp beziehen und außerdem von der Betriebsweise der Stranggießanlage abhängig sein können, sind diese allgemein betrachtet als Richtwerte aufzufassen, welche mehr oder weniger großen Schwankungen ausgesetzt sind.

Um die Produktionsleistungen auf einfachste Weise erfassen zu können, wurde ein Leistungsfaktor eingeführt. Für Rundstangen bis 50 mm ϕ und für Rohre, Bänder und Profile bis 50 mm Wanddicke gilt folgende Beziehung: Leistung (kg/h) = Kühlumfang (mm) $\times$ Leistungsfaktor, Kühlumfang = äußerer, gekühlter Profilumfang (mm) des Stranges.

Tabelle 3. Richtwerte für Strangabmessungen, welche auf horizontalen Stranggießanlagen aus Nichteisenmetall-Legierungen hergestellt werden können.

Rundstangen (Drähte, Bolzen):
15—400 mm Außendurchmesser



Rohre: 25—300 mm Außendurchmesser
5—50 mm Wanddicke, jedoch mindestens
10 % vom Außendurchmesser



Bänder (Platten): 20—650 mm Breite,
12 mm kleinste Wanddicke, jedoch mindestens
4 % der Breite bis 500 mm; mindestens
20 mm von 500—650 mm



Quadratstangen, Rechteckstangen, Sonder-
profile: 20—300 mm Kantenlänge



Beispiel: Es wird ein Band aus Messing 63, Format 650 $\times$ 20 mm hergestellt. Der Leistungsfaktor beträgt gemäß Tabelle 0,5. Der gekühlte Profilumfang ist 1300 mm (die Seiten werden hier nicht gekühlt). Somit errechnet sich die Leistung wie folgt:

$$\text{Leistung (kg/h)} = 1300 \times 0,5 = 650 \text{ kg/h.}$$

Bei einem Durchmesser oder einer Wanddicke über 50 mm haben die Leistungsfaktoren keine Gültigkeit. Richtwerte für die Produktionsleistungen von drei verschiedenen Nichteisenmetallen über 50 mm in Abhängigkeit von den Strangabmessungen sind in Tabelle 6 dargestellt.

Tabelle 4. Richtwerte für die Toleranzen der auf horizontalen Stranggießanlagen hergestellten Profile aus Nichteisenmetall-Legierungen

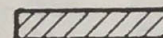
Rundstangen:
Außendurchmesser $+1 \text{ mm} - 0 \text{ mm}$



Rohre:
Außendurchmesser $+1 \text{ mm} - 0 \text{ mm}$,
Wanddicke $\pm 10 \%$



Bänder:
Breite $\pm 1 \text{ mm}$, Wanddicke 0,3 mm



Quadratstangen, Rechteckstangen, Sonder-
profile: Breite und Höhe $\pm 1 \text{ mm}$



Diese allgemeinen Angaben können nicht jeden einzelnen Fall berücksichtigen. Abweichungen von diesen Werten sind möglich.

Tabelle 5. Produktionsleistungen für Nichteisenmetalle bis 50 mm Wanddicke oder 50 mm Durchmesser bei Vollstangen

	Spez. Gew. (kg/dm ³)	Leistungsfaktor $\pm 20 \%$	
		Rohre	Vollprofile bis 50 mm Dicke
Al-Legierung	2,7	0,1	0,15
Zink	7,2	0,2	0,25
Neusilber	8,8	0,4	0,5
Bronze	8,8	0,4	0,5
Messing	8,4	0,4	0,5
Kupfer-Nickel	8,9	0,6	0,8
Kupfer	8,9	0,6	0,8
Rotguß	8,6	0,6	0,8
Blei	11,3	2,0	2,5

Die Leistungen beziehen sich auf einen Strang. Bei Mehrstrangbetrieb erhöht sich die Leistung entsprechend der Anzahl der Stränge.

$$\text{Leistung kg/h/Strang} = \text{Kühlumfang (mm)} \times \text{Leistungsfaktor}$$

$$\text{Kühlumfang} = \text{äußerer gekühlter Profilumfang (mm)}$$

Die angegebenen Werte sind Richtwerte für eine Wirtschaftlichkeitsrechnung und können je nach Betriebsbedingungen streuen. Garantieforderungen können hieraus nicht abgeleitet werden.

Bei der Berechnung der Jahresproduktion ist die Anzahl der gleichzeitig hergestellten Stränge und die maximal mögliche Betriebsdauer der Stranggießanlage zu berücksichtigen.

Tabelle 7 gibt einen Überblick über die Anzahl der gleichzeitig herzustellenden Stränge in Abhängigkeit von der Stranggröße. Diese Tabelle bezieht sich auf bestimmte Anlagentypen; Abweichungen hiervon sind durchaus möglich.

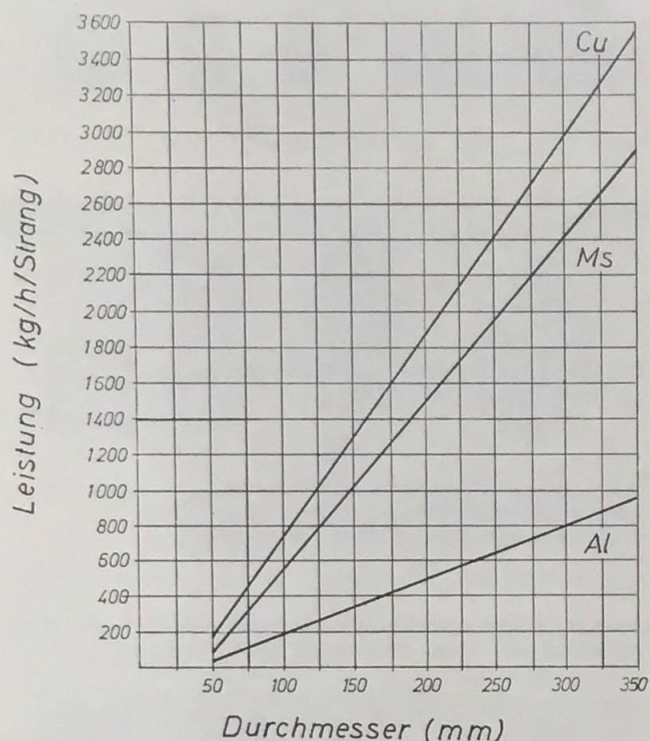
Kokillenhaltbarkeit

Bei der Produktion auf horizontalen Stranggießanlagen werden normalerweise in die Kühler Kokillen aus hochwertigem Elektrographit eingesetzt, in denen der Strang

Tabelle 6. Produktionsleistungen für Nichtisenmetalle über 50 mm Wanddicke oder über 50 mm Durchmesser bei Vollstrangen

Profil 600 × 100 mm	Al 250	Ms 1500	Cu 2000
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Die Leistungen beziehen sich auf einen Strang. Bei Mehrstrangbetrieb erhöht sich die Leistung entsprechend der Anzahl der Stränge.



Die angegebenen Werte sind Richtwerte und können je nach Betriebsbedingungen streuen. Garantieforderungen können hieraus nicht abgeleitet werden.

Tabelle 7. Größte Anzahl der Stränge in Abhängigkeit von der Stranggröße, welche mit bestimmten Maschinentypen gleichzeitig produziert werden können

Rundstangen:	15—25 mm Durchmesser 8 Stück	○ ○ ○ ○ ○ ○ ○ ○
größer als	25—250 mm Durchmesser 4 Stück	○ ○ ○ ○
größer als	250—400 mm Durchmesser 1 Stück	○
Rohre:	25—160 mm Durchmesser 4 Stück	◎ ◎ ◎ ◎
größer als	160—250 mm Durchmesser 2 Stück	◎ ◎
größer als	250—300 mm Durchmesser 1 Stück	◎
Bänder:	20—160 mm Breite 4 Stück	▬ ▬ ▬ ▬
größer als	160—200 mm Breite 3 Stück	▬ ▬ ▬
größer als	200—300 mm Breite 2 Stück	▬ ▬
größer als	300—650 mm Breite 1 Stück	▬
Quadratstangen; Rechteckstangen; Sonderprofile: abhängig von der Stranggröße	max. 4 Stück	□ □ □ □

abkühlt und dann aus diesen herausgezogen wird. Die Kosten für die Grafitkokillen sind in der Wirtschaftlichkeitsberechnung zu berücksichtigen und können entsprechend den Produktionsbedingungen sehr unterschiedlich sein. In Tabelle 8 sind Richtwerte für die Haltbarkeit der Grafitkokillen in Abhängigkeit von verschiedenen Metallegierungen dargestellt. Die Lebensdauer wird noch von vielen anderen Faktoren beeinflusst, so daß diese Richtwerte einen großen Streubereich haben. So wird die Lebensdauer der Grafitkokillen ungünstig beeinflusst z. B. durch: hohe Schmelztemperaturen, hoher Gasgehalt der Schmelze, Chromgehalte in der Schmelze, Nickelgehalte in der Schmelze, kleine Strangabmessungen, Profile mit vielen Kanten, hohe Anforderungen an die Maßgenauigkeit der Stränge, wechselnde Betriebsbedingungen, häufiger Kokillenwechsel.

Dabei werden zwei Arten von Kokillen-Verschleiß festgestellt. Beim chemischen Verschleiß gehen Bestandteile aus der Schmelze mit dem Kokillenwerkstoff eine chemische Verbindung ein. Dabei weitet sich die Kokille an der Eintrittsseite des flüssigen Metalles trichterförmig aus. Der Strang erstarrt keilförmig in der Kokille, so daß sich beim Herausziehen auf diesem zunächst Risse bilden und dieser dann abreißt. Bei mechanischem Verschleiß wird die Oberfläche der Kokille durch Abrieb beschädigt. In der Kokille entstehen Längsrillen, welche auf dem Strang als Erhebungen (Riefen) sichtbar werden. Eine mehr oder weniger gleichmäßige Vergrößerung der Strangabmessung findet jedoch meist nicht statt. Außerdem kann eine Kokille durch Brechen unbrauchbar werden.

Um die Wirtschaftlichkeit der Kokillen zu erhöhen, ist es unter bestimmten Umständen möglich, z. B. bei Kokillen für Rundstrangen, diese nach Gebrauch nachzuarbeiten und wieder einzusetzen.

Produktionsdauer

Eine Stranggießanlage kann kontinuierlich im Dauerbetrieb eingesetzt werden, entsprechend der Kokillenhaltbarkeit und der gewünschten Produktionsmenge. Es ist empfehlenswert, bei genügend großen Produktionsmengen kontinuierlich zu produzieren, da Betriebsunterbrechungen zum vorzeitigen Kokillenverschleiß führen können. Für einen Kokillenwechsel wird etwa 1 Stunde benötigt, die gesamte Produktionsunterbrechung beträgt etwa 4 Stunden. Es ist auf jeden Fall möglich, die Stranggießanlage mindestens 100 Stunden je Woche zu betreiben. Voraussetzung hierfür ist eine genügend große Produktionsmenge. Bei kleinen Produktionsmengen und häufig wechselnden Profilen und Legierungen werden Stranggießanlagen bereits ab 15 Betriebsstunden je Woche wirtschaftlich eingesetzt.

Fundament- und Installationskosten

Die horizontale Stranggießanlage kann auf jeden ebenen Gießereiflur mit niedrigen Fundamentkosten aufgestellt werden. Auch die Installationskosten sind gering, wenn die Stranggießanlage möglichst komplett ausgeliefert wird. Deshalb sollte der Preis für eine horizontale Stranggießanlage stets im Zusammenhang mit den günstigen Fundament- und Installationskosten betrachtet werden.

Berechnung der Fertigungskosten

Für die Berechnung der Fertigungskosten wurden zwei unterschiedlich gelagerte Fälle aus der Praxis gewählt.

Betrieb A:

Herstellung von jährlich 20 000 t Strangpreßbolzen, 200 mm ϕ , aus Messing 58 in einem Halbzeugwerk.

Für die Berechnung werden folgende Richtwerte verwendet: Die Verarbeitung von Messing auf horizontalen Stranggießanlagen ist möglich (Tabelle 2). Die Herstellung von Rundstrangen von 200 mm ϕ kann auf einer Strang-

Tabelle 8. Richtwerte für die Haltbarkeit der auf horizontalen Stranggießanlagen verwendeten Grafitkokillen, in Abhängigkeit von den Metall-Legierungen

Nichteisenmetalle, allgemein: bis 400 Stunden

Für die Berechnung der Wirtschaftlichkeit von im Dauerbetrieb arbeitenden Stranggießanlagen können folgende Richtwerte eingesetzt werden:

Kupfer-Nickel 75/25	15 Stunden
Neusilber 65/12	25 Stunden
Aluminium	150 Stunden
Kupfer	100 Stunden
Bronze	150 Stunden
Rotguß	150 Stunden
Messing	200 Stunden

Durch viele Einflüsse, welche die Haltbarkeit verändern können, sind diese Zahlen großen Schwankungen ausgesetzt.

Kleine Stangen = geringere Haltbarkeit
Große Stangen = größere Haltbarkeit

Tabelle 9. Wirtschaftlichkeitsberechnung für eine horizontale Stranggießanlage (Betrieb A): Herstellung von jährlich 20 000 t Strangpreßbolzen 200 mm Ø aus Messing in einem Halbzeugwerk

a) Kaufpreis der kompl. Stranggießanlage mit Sägen	DM	750 000,—
b) Fundamente, Installation, Inbetriebnahme	DM	50 000,—
c) Investitionskosten für die betriebsfertige Anlage	DM	800 000,—
d) Kosten für eine Grafitkokille 200 mm Ø	DM	660,—
e) Kokillenkosten (Standzeit 200 h × 3 Kokillen)	DM/h	9,90
f) Abschreibung (Gesamtabschreibung in 5 Jahren zu 11 Monaten zu 480 h)	DM/h	30,30
g) Zinsverlust (5 % von f)	DM/h	1,50
h) Elektrische Energie ca. 130 kW × 0,08 DM/kWh	DM/h	10,40
i) Kühlwasser ca. 10 m³/h × 0,20 DM/m³	DM/h	2,—
k) Heizöl (Gas) zum Vorwärmen des Warmhalteofens einmal wöchentlich 100 l × 0,10 DM/l : 100 h	DM/h	0,10
l) feuerfestes Material für Ofen und Induktor	DM/h	1,—
m) Maschinensatz (Summe e—l)	DM/h	55,20
n) Innerbetriebliche Transportkosten (5 % von m)	DM/h	2,80
o) Verlustzeiten (5 % von m)	DM/h	2,80
p) Verwaltungs-, Aufsichts- u. Rüstkosten (25 % von m)	DM/h	14,—
q) Bedienungskosten für einen Mann	DM/h	15,—
r) Betriebskosten (Summe m—q)	DM/h	83,80
s) Fertigungskosten (Betriebskosten/h : Produktion/h) (4500 kg/h)	DM/100 kg	2,—

gießanlage mit maximal vier Strängen erfolgen (Tabellen 3 und 7). Die Produktionsleistung beträgt etwa 1500 kg/h je Strang (Tabelle 5). Für die Berechnung der Kokillenkosten wird die Haltbarkeit von 200 Stunden eingesetzt (Tabelle 8). Da die Stranggießanlage im Dauerbetrieb arbeiten soll, wird eine Produktionsdauer von 120 Stunden je Woche angenommen. Um 20 000 t Strangpreßbolzen im Jahr herzustellen, wird eine horizontale Stranggießanlage mit drei Strängen benötigt.

Es handelt sich um eine Massenproduktion gleichartiger Profile und Legierungen. Die Fertigungskosten sind entsprechend niedrig und betragen ca. 2,— DM/100 kg Strangguß (Tabelle 9).

Betrieb B:
Herstellung von jährlich 600 t Bronze und Rotguß, und zwar 350 t Rundstangen bis 200 mm Ø und 250 t Bänder und Profile bis 200 mm Breite in einer Kundengießerei.

Tabelle 10. Wirtschaftlichkeitsberechnung für eine horizontale Stranggießanlage (Betrieb B): Herstellung von jährlich 600 t Bronze und Rotguß, und zwar 350 t Rundstangen bis 200 mm Ø, 250 t Bänder und Profile bis 200 mm Breite

a) Kaufpreis der Stranggießanlage mit Säge	DM	180 000,—
b) Fundamente, Installation, Inbetriebnahme	DM	30 000,—
c) Investitionskosten für die betriebsfertige Anlage	DM	210 000,—
d) Kosten für 1 Satz Grafitkokillen (Durchschnittspreis)	DM	200,—
e) Kokillenkosten (Standzeit 15 h × 1 Satz Kokillen)	DM/h	13,50
f) Abschreibung (Gesamtabschreibung in 5 Jahren zu 11 Monaten zu 160 h)	DM/h	23,90
g) Zinsverlust (5 % von f)	DM/h	1,20
h) Elektrische Energie ca. 8 kW × 0,08 DM/kWh	DM/h	0,64
i) Kühlwasser ca. 5 m³/h × 0,20 DM/m³	DM/h	1,—
k) Heizöl (Gas) zur Beheizung des Warmhalteofens ca. 60 l/h × 0,10 DM/l	DM/h	6,—
l) Feuerfestes Material und Tiegel	DM/h	6,—
m) Maschinensatz (Summe e—l)	DM/h	52,24
n) Innerbetriebliche Transportkosten (5 % von m)	DM/h	2,61
o) Verlustzeiten (5 % von m)	DM/h	2,61
p) Verwaltungs-, Aufsichts- u. Rüstkosten (25 % von m)	DM/h	13,06
q) Bedienungskosten für einen Mann	DM/h	15,—
r) Betriebskosten (Summe m—q)	DM/h	85,52
s) Fertigungskosten (Betriebskosten/h : Produktion/h) (340 kg/h)	DM/kg	0,25

Für die Berechnung werden folgende Richtwerte verwendet: Die Verarbeitung von Bronze und Rotguß auf horizontalen Stranggießanlagen ist möglich (Tabelle 2). Die maximale Anzahl der Stränge ist aus Tabelle 7 zu entnehmen. In diesem Fall wird die Anzahl der Stränge durch die Ausführung der Stranggießanlage bestimmt, welche für dieses wechselnde Fabrikationsprogramm und die geringen Produktionsmengen geeignet ist (Empfehlung des Herstellers).

Rundstangen:

Einsträngig	20—200 mm Ø
Zweistängig	15— 65 mm Ø
Viersträngig	15— 25 mm Ø

Bänder:

Einsträngig	bis 200 mm Breite
Zweistängig	bis 40 mm Breite

Für die Berechnung der durchschnittlichen Fertigungskosten wurde mit Hilfe der Tabellen 5 und 6 eine Durchschnittsleistung von 340 kg/h/Stranggießanlage eingesetzt. Die Kokillenhaltbarkeit beträgt gemäß Tabelle 8 150 Stunden. Durch häufigen Wechsel von Formaten und Legierungen ist der Verschleiß infolge öfteren Ein- und Ausbaues an den Warmhalteöfen erheblich höher. Deshalb wird mit einer Haltbarkeit von nur 15 Stunden gerechnet. Die Produktionsdauer beträgt ca. 8 Stunden je Arbeitstag.

Es handelt sich um kleinere Produktionsmengen unterschiedlicher Formate und Legierungen. Die Fertigungskosten sind entsprechend höher und betragen ca. 25 Pfennig je kg Strangguß (Tabelle 10).

In diesen Wirtschaftlichkeitsberechnungen sind die vorher gemachten Angaben und die Empfehlungen des Stranggießanlagenherstellers bezüglich der günstigsten Stranggießanlage berücksichtigt. Die berechneten Kosten sind Anhaltswerte und können sich je nach den besonderen

Verhältnissen in den einzelnen Betrieben ändern. In diesem Falle empfehlen wir, die Rechnung mit den am Aufstellungs-ort der Anlage gültigen Kosten durchzuführen und entsprechend zu berichtigen.

Infolge der günstigen Fertigungskosten im Zusammenhang mit den vorher beschriebenen Möglichkeiten der Einsparung von anderen Kosten bei der Umstellung auf das horizontale Stranggießverfahren werden laufend neue Stranggießanlagen in den Halbzeugwerken und Metallgießereien installiert, und es werden neue Anwendungsgebiete erschlossen.

Zusammenfassung

Horizontale Stranggießanlagen werden in zunehmendem Maße in Gießereien eingesetzt zum Herstellen von Rundstangen, Rohren, Bändern und Profilen für die Weiterverarbeitung durch Walzen, Pressen, Ziehen, Drehen,

Fräsen, Hobeln usw. Ziel dieser Arbeit ist, einerseits die heutigen Möglichkeiten der horizontalen Stranggießtechnik im Produktionsbetrieb darzustellen und andererseits dem Fachmann Richtwerte bekanntzugeben, um den Einsatz einer Stranggießanlage auch in wirtschaftlicher Hinsicht zu überprüfen. An Hand von zwei Fällen aus der Praxis wurden mit den gegebenen Daten zwei Wirtschaftlichkeitsberechnungen durchgeführt.

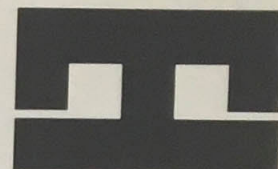
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Data and practical know-how on economical and
qualitative advantageous utilization of horizontal
continuous strip casting plants.

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The purpose of this paper is to establish data based
on existing horizontal continuous strip casting tech-
nology, for a monthly production output of 1000 tons.
The breakdown by alloys is as follows:

600 tons brass
300 tons bronze
100 tons nickel-silver

Further assumptions:

300 tons brass 640 mm x 0.60 mm
300 tons brass 20 mm x 0.25 mm
100 tons bronze 70 mm x 0.80 mm
200 tons bronze 15 mm x 0.20 mm
100 tons nickel-
silver 30 mm x 0.25 mm

The task of this exercise is to compare the following
three production methods.

- A.) Casting of ingots in moulds, hot and cold rolling
- B.) Vertical billet casting, hot and cold rolling
- C.) Horizontal continuous strip casting and cold rolling

The assumed output of 1000 tons per month can easily be
projected for a tonnage of 2000 tons per month provided
equipment with sufficient capacity is available and the
given data has been taken into account. Consequently,
a feasibility study can be worked out, using the data
given in this paper in conjunction with plant-internal
cost figures.

Horizontal continuous strip casting permits the economic production of bronze not only from the casting technic point of view, but from the point of production yield as well, which does not hold true for ingot and vertical billet casting, because:

- 1.) unusually high amount of chip removal and limited tool life in presses, sheares and other cutting automatics, due to formation of Sn-O_2 .
- 2.) obtaining of high pliability is not possible since the allowable P-content of 0.4 % (as per DIN) cannot be utilised because hot rolling of bronze with that high a P-content is not possible.

The strip casting process is especially suitable to yield a high quality material since the as cast strip emerges below the molten metal level in the holding furnace. Furthermore, up to 80 % of milling chips can be immediately remelted without detriment to the cast product.

For the reasons mentioned, this process is the best way to establish the most economical cold rolling operation for all copper alloys.

Furthermore, a production setup using several strip casting units is less vulnerable to break-downs, thus maintaining an acceptable level of economical strip production as a number of feasibility studies have revealed.

Casting of the same alloy over a long period of time is the desirable goal of any fabricator. However, should it become necessary to change alloys on short notice, the easy convertibility of the continuous strip casting machine permits almost immediate resumption of production with the new alloy.

If there are large tonnages to be produced it would be sensible to concentrate production in one plant. Should these large quantities be processed further, in different places quite far apart, it would seem logical to have the strip casting operation nearby. This would result in savings of transportation costs for the finished product as well as for scrap returning to the foundry.

This de-centralization has a number of advantages, one of them being the lessening of the effect of power failures and break-downs during production runs.

For comparisons of the three production methods, there are tables attached pointing out the differences in the processes, listing of specific performance data which in conjunction with plant-intern cost data form the basis for studies on economics for the process in question.

Having looked at the manufacturing process in general, the next step is to compare and scrutinize more closely differences in operating methods, equipment cost and output for each of the three processes from the melting of the metal to the start of cold rolling of the strip. Any work or expenditure required previous to melting or after cold rolling, is considered to be the same for all three manufacturing methods.

In planning production facilities, it is of the utmost importance to ensure that each step of the production sequence will be carried out in time, meeting the specific demands for quantity and quality of the produced material. To reach that goal, a number of factors have to be considered such as, well trained and qualified personnel, high grade carburizing and auxilliary material and equipment and last but not least, equipment properly maintained and well suited for the job to be done.

It is imperative, that the required tonnage can safely and reliably be produced with the equipment. However, over-capacity as a form of safeguard is not desirable either.

Following is an equipment roster for each of the three processes considered, to achieve the required output as specified in tables 1 - 3.

A.) Casting of Ingots in Moulds

Equipment:

2 complete melting furnaces 2.5 tons
3 complete melting furnaces 1.0 tons
5 watercooled ingot moulds for 1.0 ton ingots
2 watercooled ingot moulds for 0,4 ton ingots
2 saws
2 knife head milling machines
2 movable milling machines
1 saw blade sharpening machine

Auxiliary material and tools to be stocked:

Charcoal, melting salt, copper plates for moulds,
milling machine, sawblades and temperature measuring
devices.

Capital expenditure: 1.5 Million German Marks

B.) Casting of Ingots on Vertical Machines

Equipment:

1 complete melting furnace 2.5 tons
2 complete melting furnaces 2.0 tons
3 vertical casting plants
2 saws
2 milling machines
1 saw sharpening machine

Auxiliary material and tools to be stocked:

Charcoal, melting salt, dies, milling machine saw-
blades, temperature measuring devices.

Capital expenditure: 2.5 Million German Marks

C.) Horizontal Strip Caster

Equipment:

- 3 complete melting furnaces 1.5 tons
- 2 complete melting furnaces 1.0 tons
- 5 horizontal strip casting plants
- 2 milling machines to produce dies
- 1 saw sharpening machine

Auxiliary materials and tools to be stocked:

Charcoal, melting salt, graphite for dies, spare parts for milling machine, saw blades, temperature measuring devices.

Capital expenditure: 4.2 Million German Marks

Hot Rolling

Production processes A.) and B.) have to invest in hot rolling facilities and their respective auxiliary equipment.

Equipment that has to be acquired:

- warm-up furnace for scheme "A" for 1 ton ingots or
- warm-up furnace for scheme "B" for 2.5 tons ingots
- hot rolling mill
- roll grinding machine
- milling machine with straightening rolls
- grinding machine for milling cutters

Spare parts to be kept for processes "A" and "B" generally are the following:

spare rolls, grinding discs, spare milling cutters.

Capital expenditures for the hot rolling mill will amount to approximately 20 Million German Marks.

After hot rolling and milling we are left with mill bars weighing up to 900 LBS for bronze and 2000 to 5000 LBS for other alloys. Thickness of the material is generally 14 mm.

Cold Rolling

The basis for considering subsequent processing steps is the continuously cast strip which according to scheme "C" is readily available.

The foundry supplies continuous cast strip of 25 1/2" width and 3/4" thickness, milled and coiled, weighing approximately 2.5 tons. Bronzes containing 4% and more tin have to be homogenized before cold rolling.

The layout of the cold roll stand should be as follows:

separating force	1.200 tons
power requirements	1.400 KW
rolling speed	250 m/min.

Weight of the cold rolling mill is approximately 400 tons.
Type of mill: four-high reversing mill with 2 sets of rolls

- 1.) 500/1000 $\emptyset$ x 800
- 2.) 350/1000 $\emptyset$ x 800

This type of mill is suitable for rough, re-roll and possibly for finishing operations.

In calculating rolling efficiency 10 passes are being considered to reduce the strip from 20 mm to 3.5 mm. However, some alloys will only require 7 passes for the same reduction.

Rolling speeds during the rough milling operation for the initial passes should be set at 40 m/min. and increased to 120 meters/min. for the balance of the operation.

To establish the rolling capacity of the mill, an average rolling speed of 80 meters/min. is being used. Hence, considering a degree of efficiency of 80 % a rough milling capacity of 3600 tons per month is possible. For 1000 tons of finished material 1500 tons of re-roll strip have to be produced. All calculations are based on 21 work days per month with 3 shifts per day.

The unused rough milling capacity of 2000 tons represents approximately 37 shifts. There 37 shifts are being used for the re-roll and if possible for the finish rolling operation.

Rolling capacity for the last two operations is based on 7 passes to reduce from 3.5 mm to 0.9 mm; with some alloys this can be achieved in 5 passes.

Average rolling speed is 175 m/min., and weight of the coils is now approximately 2.35 tons.

After rough milling, annealing, pickling and brushing, side-trimming and shearing, there are now 1425 tons of strip 3.5 mm thick as re-roll stock available. This tonnage is within the mills capacity of 1480 tons.

Capital expenditure for there facilities in operating condition will amount to 15 Million German Marks.

Going the continuous strip casting route we find, that only 1350 tons of re-roll material are required to yield 1000 tons of finished material. This unused capacity should be kept as a reserve and could be used for finish rolling. Necessary equipment for the finishing rolling operation is:

- 1 four-high mill, 800 mm wide and approx. 600 KW capacity
- 1 pulling type furnace for wide strip
- 1 pulling type furnace for narrow strip
- 1 hooded annealing furnace to anneal under protective gas
- 1 four-high tandem mill for finishing strip with closest tolerances
- 1 two-high dressage mill
- 1 slitting unit for wide strip
- 2 cross cut shears
- 1 pickling and brushing unit including side trimmers

Depending on the production program, there will be coilers, shears and levellers required.

We are now in a position to render complete consulting service in the planning of non-ferrous rolling mill facilities from the raw material to the finished product. For the facilities considered we enclose relevant schematic flow sheets.

Tables 1 to 5 clearly indicate specific advantages and savings the continuous strip casting route has to offer. The large capital investment for a hot rolling mill with auxiliaries is not required. Furthermore, process "C" will yield the same tonnage of finished material with a 12 % saving in raw material. There are only some of the more apparent advantages inherent to the continuous strip casting route.

We are convinced, the foregoing will lead to further discussions on the subject and will show that the concept of continuous strip castings is a technical development with economical and qualitative advantages that can not be dismissed lightly.

Table 1 :

Comparison of work steps

work sequences		A ingots cast in moulds	B billets cast vertically	C strip cast horizontally	remarks
1.1	metal receiving	x	x	x	
1.1.1	own	x	x	x	
1.1.2	outside	x	x	x	
1.1.3	storage	x	x	x	
1.1.4	sorting-out	x	x	x	
1.2	charging	x	x	x	
1.3	melting	x	x	x	
1.3.1	casting	x	x	x	
1.3.2	holding	omitted	x	x	
1.3.3	cleaning of dies	x	x	omitted	
1.3.4	preparation of dies	x	x	x	
1.3.5	cooling of ingot	x	omitted	omitted	
1.4	rawing	x	x	encl. in 1.3.1	
1.4.1	cleaning	x	x	omitted	
2.1	heat-up	x	x	omitted	
2.2	hot-rolling	x	x	omitted	Before hot-rolling homogenization annealing of bronzes with 4 % Sn-content is necessary.
2.2.1	cooling	x	x	omitted	
2.2.2	straighten	x	x	omitted	
2.2.3	milling	x	x	encl. in 1.3.1	
2.2.4	coiling	omitted	omitted	encl. in 1.3.1	
2.3	de-coiling	omitted	omitted	x	
2.3.1	rough rolling (cold)	x	x	x	Before cold- rolling homogeni- zation annealing of the strip cast bronzes with 4 % Sn-content is necessary.
2.3.2	long run-out	x	x	x	
2.3.3	reversing on reels	altern.to 2.3.2	altern.to 2.3.2	altern.to 2.3.2	
2.3.4	reversing coiling and de-coiling equipment	altern.to 2.3.2	altern.to 2.3.2	altern.to 2.3.2	
2.4	recrystallize, annealing	x	x	x	
2.5.	welding	x	x	omitted	
2.5.1	side trimming	encl. in 2.5	encl. in 2.5	encl. in 2.6	
2.6	pickling and brushing	x	x	x	
2.7	finish rolling with intermediate steps: annealing, splitting straighten, controlling	x	x	x	
2.9	removing of weld seam	x	x	omitted	
3.0	quality control and packing	x	x	x	
4.0	shipping	after 1.1 1.1.3 1.1.4 1.3.1 1.3.5 1.4 1.4.1 2.2.3 - 2.3.2 2.5 2.6	after 1.1 1.1.3 1.1.4 1.1.3 - 1.4 1.4.1 2.2.3 - 2.3.2 2.5 2.6	after 1.1 1.1.3 1.1.4 - - - - - 2.2.4 2.3.2 - - 2.6	

Table 2 :

Productivity survey

	work sequences	A ingots cast in moulds	B billets cast vertically	C strip cast horizontally	remarks
1.1	metal receiving	1000	1000	1000	
1.1.1	own				
1.1.2	outside				
1.1.3	storage				
1.1.4	sorting-out				
1.2	charging	1000	1000	1000	
1.3	melting				
1.3.1	casting	970	970	965	
1.3.2	holding				
1.3.3	cleaning of dies				
1.3.4	preparation of dies				
1.3.5	cooling of ingot				
1.4	rawing)				
1.4.1	cleaning)	852	875		
2.1	heat-up				
2.2	hot-rolling				
2.2.1	cooling				
2.2.2	straighten				
2.2.3	milling	805	825	855	
2.2.4	coiling				
2.3	de-coiling				
2.3.1	rough rolling (cold)				
2.3.2	reversing, long run-out				
2.3.3	reversing on reels				
2.3.4	reversing, coiling and de-coiling equipment				
2.4	recrystallize, annealing				
2.5	welding				
2.5.1	side trimming	719	758	859	
2.6	pickling and brushing				
2.7	finish rolling with intermediate steps: annealing, splitting, straighten, controlling				
2.9	removing of weld seam				
3.0	quality control and packing				
4.0	shipping				

Table 3 :

Productivity survey charge for 1000 t finished product (600 t MS of that)

work sequences		A		B		C		remarks
		ingots cast in moulds		billets cast vertically		strip cast horizontally		
		Ms	Ms+Bz+Ns	Ms	Ms+Bz+Ns	Ms	Ms+Bz+Ns	
1.1	metal receiving	1035	1930	1003	1730	905	1510	
1.1.1	own							
1.1.2	outside							
1.1.3	storage							
1.1.4	sorting-out	1035	1930	1003	1730	905	1510	charge furnace
1.2	charging							
1.3	melting							
1.3.1	casting	1004	1875	964	1660	875	1460	
1.3.2	holding							
1.3.3	cleaning of dies							
1.3.4	preparation of dies							
1.3.5	cooling of ingot							
1.4	rawing)							
1.4.1	cleaning)	928	1568	885	1484	807	1347	
2.1	heat-up							
2.2	hot-rolling							
2.2.1	cooling							
2.2.2	straighten							
2.2.3	milling							
2.2.4	coiling							
2.3	de-coiling							
2.3.1	cold rolling							
2.3.2	long run-out							
2.3.3	reversing on reels							
2.3.4	reversing, coiling and de-coiling equipment							
2.4	annealing							
2.5	welding							
2.5.1	side trimming							
2.6	pickling and brushing	786	1312	783	1310	784	1308	strip at 3,5/2,5 t coil
2.7	finish rolling with intermediate steps: annealing, splitting, straighten, controlling							
2.9	removing of weld seam							
3.0	quality control and packing	600	1000	600	1000	600	1000	finished product
4.0	shipping							

Table 4 :

Comparison in productivity (h/1000 kg)

column 1: time table
 column 2: time table column 1 converted to quantity
 in table II

work sequences		A		B		C		remarks
		ingots cast in moulds		billets cast vertically		strip cast horizontally		
		1	2	1	2	1	2	
1.1	metal receiving	0,35		0,35		0,35		
1.1.1	own							
1.1.2	outside							
1.1.3	storage							
1.1.4	sorting-out	0,50		0,50		0,50		
1.2	charging							
1.3	melting	0,91		0,82		1,17		
1.3.1	casting			0,27		1,17		
1.3.2	holding							
1.3.3	cleaning of dies							
1.3.4	preparation of dies							
1.3.5	cooling of ingot							
1.4	rawing	0,22		0,15				
1.4.1	cleaning	0,62		0,62				
2.1	heat-up							
2.2	hot-rolling	0,67		0,67				
2.2.1	cooling							
2.2.2	straighten							
2.2.3	milling	0,59		0,59				
2.2.4	coiling							
2.3	de-coiling							
2.3.1	rough rolling (cold)	0,96		0,96		1,40		
2.3.2	reversing run-out							
2.3.3	reversing on reels							
2.3.4	reversing coiling and de-coiling equipment							
2.4	recrystallize, annealing	0,22		0,22		0,22		
2.5	welding							
2.5.1	side trimming	0,14		0,14				
2.6	pickling and brushing	0,37		0,37		0,37		
2.7	finish rolling							
2.9	removing of weld seam							
4.0	shipping							
sum :		5,55		5,66		5,18		

Table 5 :

Time table (rel. to 1000 t finished product
(h) of that 600 t Ms according to tables 3 and 4)

work sequences		A ingots cast in moulds		B billets cast vertically		C strip cast horizontally		remarks
		Ms	Ms+Bz+Ns	Ms	Ms+Bz+Ns	Ms	Ms+Bz+Ns	
1.1	metal receiving	360	670	350	610	320	530	
1.1.1	own							
1.1.2	outside							
1.1.3	storage							
1.1.4	sorting-out	517	960	500	850	450	750	
1.2	charging							
1.3	melting							
1.3.1	casting	910	1710	780	1360	1020	1770	
1.3.2	holding			260	450	1020	1760	
1.3.3	cleaning of dies							
1.3.4	preparation of dies							
1.3.5	cooling of ingot							
1.4	rawing	200	350	140	250			
1.4.1	cleaning	580	970	590	1030			
2.1	heat-up							
2.2	hot-rolling	620	1050	640	1000			
2.2.1	cooling							
2.2.2	straighten							
2.2.3	milling	550	930	560	870			
2.2.4	coiling							
2.3	de-coiling							
2.3.1	cold-rolling	760	1260	850	1250	1100	1830	
2.3.2	long run-out							
2.3.3	reversing on reels							
2.3.4	reversing, coiling and de-coiling equipment	120	290	190	290	170	290	
2.4	annealing	120	180	120	180			
2.5	welding							
2.5.1	side trimming	290	490	290	480	290	490	
2.6	pickling and brushing							
2.7	finish rolling with intermediate steps: annealing, splitting straighten, controlling							
2.9	removing of weld seam							
3.0	quality control and packing							
4.0	shipping							
	sum :	5077	8860	5270	8620	4370	7420	

Customer: I a
product:
alloy:
specification:
thickness: 0,60 mm
width: 620 mm

strip
brass 63:37
soft

Customer: I b
product:
alloy:
specification:
thickness: 0,60 mm
width: 620 mm

strip
brass 63:37
soft

Remarks:

Horizontally cast strip

ingots in moulds

No.	work sequence	charge: % kg
1	sorting-out	136
2	melting	
3	strip casting	
4	milling	
5	rolling to 3,20	
6	annealing (stationary)	
7	side trimming, pickling and brushing	
8	rolling e.20 to 1.80	
9	annealing (stationary)	
10	pickling and brushing	
11	rolling 1.80 to 0.60	
12	annealing furnace / pulling type furnace	
13	finish cutting 1 x 620	
14	coiling	
15	packing/weighing	100

No.	work sequence	charge % kg
1	sorting-out	153
2	melting/casting	
3	sawing/cropping	
4	cleaning	
5	hot rolling	
6	milling	
7	rolling to 3.20	
8	annealing/stationary	
9	welding and side trimming	
10	pickling and brushing	
11	rolling 3.20 to 1.80	
12	annealing/stationary	
13	pickling and brushing	
14	rolling 1.80 to 0.60	
15	annealing/pulling type furnace	
16	finish cutting 1 x 620	
17	coiling	
18	packing/weighing	100

Customer: strip
product: brass 72:28
alloy: soft
specification:
thickness: 0.12 mm
width: 32 mm

Remarks: horizontally cast strip

No.	work sequence	charge % kg
1	sorting-out	144
2	melting	
3	strip casting	
4	milling	
5	rolling to 3.20	
6	annealing/stationary	
7	side trimming, pickling and brushing	
8	rolling 3.20 - 2.30	
9	annealing/stationary	
10	pickling and brushing	
11	rolling 1.30 - 0.40	
12	annealing /pulling type furnace	
13	cutting 3 x 200	
14	rolling 0.40 - 0.12	
15	annealing/ pulling type furnace	
16	finish cutting 3 x 32	
17	coiling	
18	packing/weighing	100

Customer: strip
product: brass 72:28
alloy: soft
specification:
thickness: 0,12 mm
width: 32 mm

Remarks: ingots in moulds

No.	work sequence	charge % kg
1	sorting-out	160
2	melting / casting	
3	sawing / cropping	
4	cleaning	
5	hot rolling	
6	milling	
7	rolling to 3.20	
8	annealing/stationary	
9	welding and side trimming	
10	pickling and brushing	
11	rolling 3.20 - 1.30	
12	annealing/stationary	
13	pickling adn brushing	
14	rolling 1.30 - 0.40	
15	annealing /pulling type furnace	
16	cutting 3 x 200	
17	rolling 0.40 - 0.12	
18	annealing / pulling type furnace	
19	finish cutting 6 x 32	
20	coiling	
21	packing/weighing	100

H. A. KRALL UND H. A. KOCH

Neuere Entwicklungen zur Herstellung von Bändern und Profilen aus Nichteisenmetallen auf horizontal arbeitenden Stranggießanlagen

Überreicht durch:

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(Werk I Koenig & Bauer AG)

Neuere Entwicklungen zur Herstellung von Bändern und Profilen aus Nichteisenmetallen auf horizontal arbeitenden Stranggießanlagen

Von Heribert A. Krall, VDG, und Hans Adalbert Koch, VDG, in Würzburg

Das horizontale Stranggießen von Nichteisenmetallegerungen gewinnt in der metallverarbeitenden Industrie immer größere Bedeutung. Um mit Stranggießanlagen wirtschaftlich arbeiten zu können, ist neben einer guten Maschinenkonstruktion vor allen Dingen die praktische Betriebserfahrung in der Verfahrenstechnik und Metallurgie bei den Stranggießmaschinenherstellern wichtig, damit sie dem Kunden das notwendige Know-How vermitteln können und eine störungsfreie Erzeugung gewährleistet ist. — Hier werden neue Stranggießanlagen beschrieben und die vielseitigen Einsatzmöglichkeiten an Hand von Fertigungsbeispielen dargestellt.

Das Herstellen von Erzeugnissen aus Eisen und Nichteisenmetallegerungen im Stranggießverfahren ist bereits seit über hundert Jahren bekannt. Eine Vielzahl von Patenten ist auf dem Gebiet des Stranggießens angemeldet. Der wirtschaftliche Erfolg dieser Erfindungen war jedoch zum größten Teil auf eine ganz besondere Fertigung beschränkt. Erst in den letzten zehn Jahren erlebte das Stranggießen einen großen Aufschwung. Die stürmische Entwicklung hält noch an, so daß sich nach vorsichtigen Schätzungen in den nächsten zehn Jahren der Anteil der Stahl- und Metallherzeugung nach dem Stranggießverfahren verdoppeln dürfte.

Vergleich zwischen vertikal und horizontal arbeitenden Stranggießanlagen

Stranggießanlagen kann man in vertikale und horizontale Systeme einteilen. Bis vor wenigen Jahren waren vertikal arbeitende Stranggießanlagen für die Stahl- und Nichteisenmetallerzeugung noch in der Überzahl. Inzwischen ist aber eine deutliche Verschiebung zu den horizontal arbeitenden Anlagen festzustellen. Da die horizontalen verschiedene Vorteile gegenüber den vertikalen Systemen besitzen, versucht man in jüngster Zeit auch beim Stahlstrangguß horizontale Systeme anzuwenden, indem man bogenförmige Kokillen anwendet, um den Strang beim Austritt aus der Kokille horizontal weiterführen zu können, oder indem man den Strang nach dem Gießen im rotwarmen Zustand über Umlenkrollen leitet und ihn auf diese Weise in eine horizontale Richtung führt. Beim Stranggießen von Nichteisenmetallen werden in ständig steigendem Maße rein horizontal arbeitende Stranggießanlagen eingesetzt, bei denen Kühler und Kokille horizontal angeordnet sind. Viele der führenden Metallwerke der Welt, die bereits Erfahrungen mit vertikal arbeitenden Stranggießanlagen gesammelt haben, erwerben jetzt horizontal arbeitende Stranggießanlagen oder planen die Anschaffung solcher Maschinen. Diese erfordern keine großen Bauhöhen und können so in jeder Gießerei ohne große Fundament-, Gebäude- und Installationskosten mit sehr geringem Aufwand aufgestellt werden. Die Lohnkosten für den Betrieb der horizontal arbeitenden Anlagen sind gering, da ein Bedienungsmann auch mehrere Anlagen überwachen kann. Die Kokille und der erstarrte Strangquerschnitt können von dem Bedienungsmann sehr gut und ohne jede Unfallgefahr beobachtet werden, so daß die Möglichkeit eines Metalledurchbruches kaum gegeben ist. Sollte ausnahmsweise, insbesondere bei einer Versuchsfertigung, ein Metalledurchbruch auftreten, so ist nahezu keine Unfallgefahr vorhanden, da sich das Metall in einem unter dem Ofen befindlichen Behälter sammelt.

Metallurgisch bringt das horizontale Stranggießen ganz besondere Vorteile, da die direkt am Ofen angebrachte Kokille mit diesem ein geschlossenes System bildet. Das

Metall gelangt von dem Warmhalteofen ohne Berührung mit dem Luftsauerstoff in die Kokille, und das zusätzliche Arbeiten mit entsprechenden Schutzgasen ist, falls diese erforderlich sind, wesentlich erleichtert.

Diese Anlagen können ein wesentlich größeres Fertigungsprogramm bewältigen und insbesondere auch kleinere Rundstangen und Rohre unter 100 mm Dmr. einwandfrei herstellen. Die Oberflächenbeschaffenheit der nach dem horizontalen Verfahren hergestellten Stränge ist anderen Verfahren überlegen. Auch ist die ursprünglich befürchtete Entmischung von Metallschmelzen mit Bestandteilen von unterschiedlichen spezifischen Gewichten nicht gegeben. Die besondere Art der Kühlbedingungen ergibt in der Praxis einen Werkstoff mit einem gleichmäßigen Gefüge.

Der Fertigungsprozeß läuft kontinuierlich ab, d. h., es können Stränge von beliebiger Länge hergestellt werden, die anschließend gesägt werden. Eine Unterbrechung des Gießvorganges ist nicht notwendig.

Die Entwicklung horizontal arbeitender Stranggießanlagen

Die Konstruktion und der Betrieb horizontal arbeitender Stranggießanlagen erfordern ein großes Maß an Erfahrungen, die auf Grund von Forschungsarbeiten, gepaart mit praktischen Versuchen, erworben werden können. Nicht wenige Gießereien haben die notwendigen Erfahrungen zum Bau und Betrieb solcher Anlagen unterschätzt. So wurden Stranggießanlagen hergestellt oder erworben, die nicht den gewünschten wirtschaftlichen Erfolg brachten. Die Folge davon war die Notwendigkeit, hohe Beträge für die Entwicklungskosten und Änderungen zu investieren oder den Betrieb der Stranggießanlagen ganz einzustellen. Einige Herstellerfirmen, die sich besonders mit Stranggießmaschinen befassen, sind jedoch heute in der Lage, Anlagen zu bauen, die dem rauen Gießereibetrieb angepaßt sind und einwandfrei arbeiten. Von ganz besonderem Vorteil ist es, wenn dem Stranggießanlagenhersteller außer einer gut eingerichteten Maschinenfabrik auch eine eigene Gießerei zur Verfügung steht, in der alle Entwicklungen durchgeführt werden können. Somit ist Gewähr für die Herstellung von Stranggießanlagen nach dem neuesten Stand der Technik und eine ständige Übermittlung des notwendigen „Know-how“ gegeben, die einen einwandfreien und wirtschaftlichen Betrieb der Anlagen ermöglichen.

Auf dieser Grundlage konnten in den vergangenen Jahren wirtschaftlich arbeitende Stranggießanlagen für Gußeisen und seine Legierungen in zahlreiche Länder der Welt geliefert werden, mit denen Querschnitte ab 15 mm Dmr. bis zu 400 mm Dmr. hergestellt werden können. *Bild 1* zeigt eine vollständige Stranggießanlage mit Warmhalteofen, Abziehvorrichtung und fliegender Säge sowie eine Abdrück- und Stapelvorrichtung.

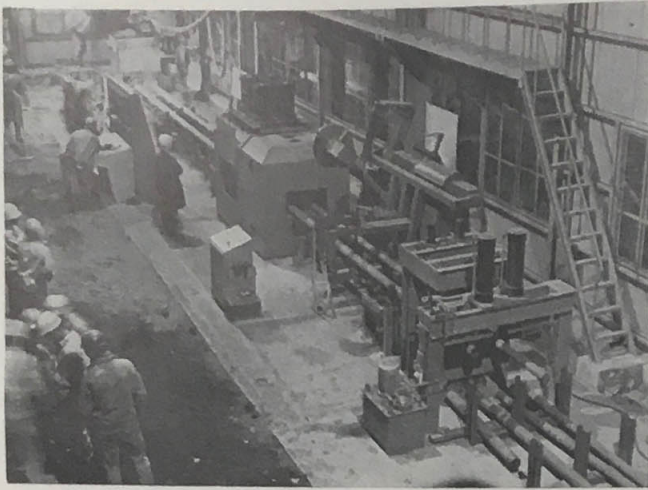


Bild 1. Horizontal arbeitende Stranggießmaschine

Da das Stranggießen von Gußeisenlegierungen größere Anforderungen als das Stranggießen von Nichteisenmetalllegierungen stellt, war es naheliegend, auf Grund der vorliegenden vielfältigen Erfahrungen, die Entwicklung einer horizontal arbeitenden Stranggießanlage für Nichteisenmetalle zu betreiben. So konnte die auch bei den hohen Temperaturen des Gußeisens erzielte große Betriebssicherheit ausgewertet werden, um die Fertigung auch von Nichteisenmetallen mit höheren Gießtemperaturen wie z. B. Kupfer-Nickel-Legierungen aufzunehmen.

Die beim Stranggießen von grauem Gußeisen erzielten Erfolge zum Vermeiden der Kantenhärte durch besonders gleichmäßige und gesteuerte Abkühlungsbedingungen des Kokillen- und Kühlwassersystems vermittelten wertvolle Erfahrungen zur Entwicklung der neuen horizontal arbeitenden Stranggießanlagen für Nichteisenmetalle.

Horizontal arbeitende Stranggießanlagen für Nichteisenmetalle

Der Aufbau der Stranggießanlagen ist schematisch aus Bild 2 ersichtlich. Ein Warmhalteofen wird vorgeheizt und zu Beginn der Erzeugung mit flüssigem Metall aus dem Schmelzbetrieb gefüllt. Während der Fertigung befindet sich

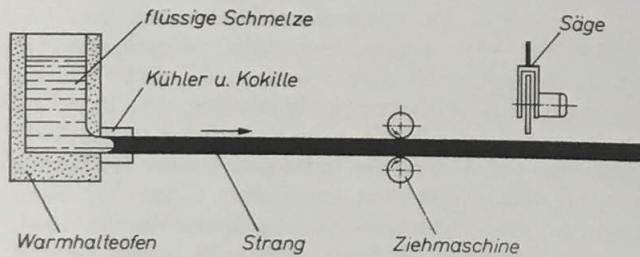


Bild 2. Prinzip horizontal arbeitender Stranggießanlagen

immer eine gewisse Mindestmenge Metallschmelze in dem Warmhalteofen, und in regelmäßigen Zeitabschnitten, abhängig von der Erzeugungsleistung der Anlage, wird eine bestimmte Menge flüssiges Metall nachgefüllt. Die Schmelze fließt aus dem Warmhalteofen in eine Graphitkokille, die am unteren Teil angebracht ist und mit Hilfe eines Kühlers mit Wasser gekühlt wird. In der Kokille erstarrt die Schmelze und wird durch die Ziehmaschine als Strang herausgezogen. Anschließend trennt eine Säge den Strang in die gewünschten Fertigungslängen.

Horizontal arbeitende Stranggießanlagen verschiedener Typen stehen zur Verfügung. Sie unterscheiden sich in folgenden Punkten:

Größe und Querschnitt der herzustellenden Stränge,
Anzahl der herzustellenden Stränge,
Antriebsart,
Beheizungsart.

Im folgenden wird am Beispiel des Fertigungsprogramms eines Herstellers ein Überblick über den gegenwärtigen Stand gegeben.

Aus Bild 3 ist zu ersehen, welche Formate und Abmessungen mit diesen Stranggießanlagen gefertigt werden können. Der größte Anlagentyp eignet sich für alle hier dargestellten Formate und Abmessungen. Andere Anlagen kommen nur für einen Teilbereich in Frage.

Die Anzahl der Stränge ist abhängig von der gewünschten Erzeugungsleistung. Es gibt Stranggießanlagen mit ein, zwei und vier Strängen, in Sonderausführungen bis zu sechzehn Strängen.



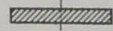
Rundstangen 10 bis 300 mm Durchmesser



Rohre 20 bis 300 mm Außendurchmesser
Wanddicke >4 mm, mindestens 10 %
des Außendurchmessers



Quadratstangen 20 bis 300 mm Kantenlänge



Platten, Bänder 20 bis 500 mm Breite
Dicke >5 mm, mindestens 4 %
der Breite

Bei bestimmten Metallegierungen können sich die möglichen Minimalabmessungen verschieben

Bild 3. Richtwerte für Strangabmessungen aus Nichteisenmetallen beim horizontalen Stranggießverfahren

Die Antriebsart richtet sich nach den herzustellenden Strangabmessungen und Metallegierungen. Spezialantriebe mit hoher Frequenz bis zu 1000 Schaltungen/min und sehr kurzen Ziehlangen bis rd. 0,1 mm stehen zur Verfügung. Diese Antriebsart ist für alle Querschnitte und Metallegierungen bestens geeignet. Besonders vorteilhaft ist diese Antriebsart bei der Herstellung von hochkupferhaltigen Legierungen, von dünnwandigen Rohren und breiten Platten mit einer geringen Wanddicke und von sehr kleinen Rundstangen. Außer diesen Einrichtungen können preiswerte Antriebe mit einer geringeren maximalen Schalthäufigkeit und einer größeren minimalen Ziehlänge verwendet werden.

Der Warmhalteofen kann mit Gas, Öl oder elektrischer Energie beheizt werden; eine vergleichende Zusammenstellung gibt Tafel 1. Die Vorteile eines öl- oder gasbeheizten Tiegelofens liegen in den niedrigen Anschaffungskosten. Der Vorteil bei den elektrisch beheizten Öfen ist der größere Fertigungsbereich der Stranggießanlage und die Möglichkeit einer besseren Betriebsüberwachung. Der Nutzinhalt beim öl- oder gasbeheizten Warmhalteofen beträgt 500 kg, der

Tafel 1. Vergleich zwischen öl- oder gasbeheizten und elektrisch beheizten Warmhalteöfen für Stranggießanlagen

Öl- oder gasbeheizt mit Tiegel	Elektrisch beheizt ohne Tiegel
Vorteile	Vorteile
Niedrige Anschaffungskosten	Große Betriebssicherheit
Geringe Betriebskosten	Großer Fertigungsbereich
Häufiger Legierungswechsel möglich, da Tiegel gut zu reinigen und wenig Sumpf	Gute Temperaturüberwachung möglich
Einfacher Kokillenwechsel	Keine Belästigung durch Lärm und Brennergase
	Einfacher Kokillen- und Formatwechsel
	Geringe Betriebskosten
Nachteile	Nachteile
Lärmbelästigung durch Brennergase	Höhere Anschaffungskosten
Begrenzter Fertigungsbereich	Häufiger Legierungswechsel ungünstig
wegen begrenzter Tiegelgrößen	
Temperaturregelung der Schmelze ungünstig	

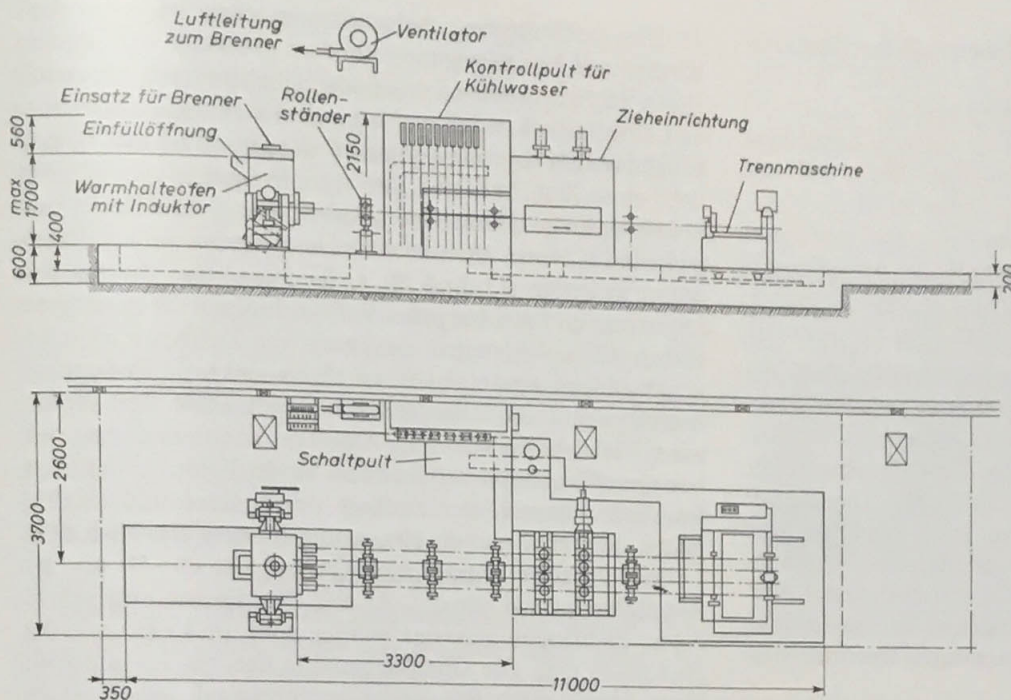


Bild 4. Aufstellungsplan für eine Stranggießanlage

Nutzzinhalt beim elektrisch beheizten Induktionsofen 1000 kg Kupferlegierung.

Der Aufstellungsplan in *Bild 4* gibt eine Übersicht über eine horizontal arbeitende Stranggießanlage mit elektrisch beheiztem Warmhalteofen. Hierfür wird eine Fläche von 14×4 m benötigt. Rechts vom Warmhalteofen befindet sich die Zieheinrichtung, der dann die Trennmaschine folgt. Die ganze Anlage wird von einem Schalt-pult aus bedient, das sich in Höhe der Zieheinrichtung befindet. Zur Bedienung der Stranggießanlage werden ein bis zwei Personen benötigt. Diese Stranggießanlage erfordert nur geringe Fundamentkosten und keine großen Bauhöhen. Nach Fertigstellung der Fundamente ist die Anlage in wenigen Tagen aufgestellt und betriebsbereit. Als Betriebsmittel werden Heizöl oder Gas zum Vorwärmen, elektrische Energie, Kühlwasser und geringe Mengen Preßluft benötigt; Verbrauchsmaterial sind Stampfmassen und Graphitkokillen. Die Kosten für die Betriebsmittel und das Verbrauchsmaterial sind so gering, daß sie die Wirtschaftlichkeit günstig beeinflussen.

Bild 5 zeigt eine dem Aufstellungsplan entsprechende Stranggießanlage bei der Erzeugung von vier Bändern einer Kupferlegierung mit einem Querschnitt von 80×10 mm. Die Ziehgeschwindigkeit wird durch eine vollelektronische



Bild 5. Horizontal arbeitende Stranggießanlage (Werkbild: Technica-Guss, Würzburg)

Steuerung in Steekkartentechnik überwacht. Der Bedienungsmann kann die Ziehgeschwindigkeit stufenlos einstellen und die Kühlwasserkreisläufe am Bedienungspult überwachen und regeln. Für die zukünftige Entwicklung ist die Steuerung der Maschinenanlage durch einen Prozeßrechner vorbereitet. Mit einer automatisch arbeitenden Säge nach *Bild 6* können die hergestellten Stangen und Bänder auf die gewünschte Fertigungslänge geschnitten werden. Diese Stranggießanlage läßt sich einrichten für:

- 4 Stränge bis 80 mm Dmr.
oder
- 2 Stränge bis 140 mm Dmr.
oder
- 1 Strang bis 200 mm Dmr.
oder
- Platten bis 500 mm Breite.

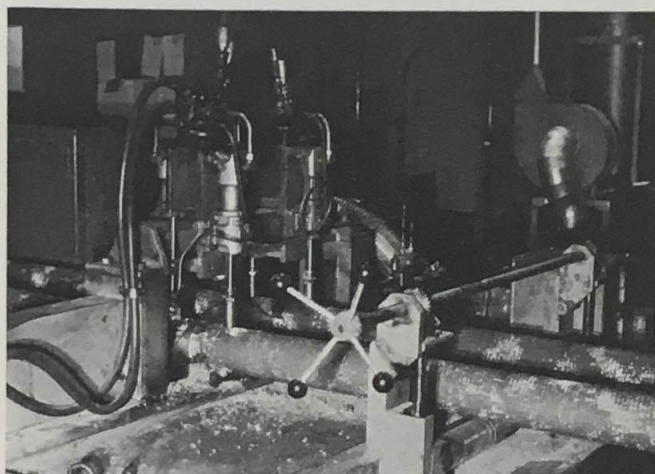


Bild 6. Automatische Trennmaschine

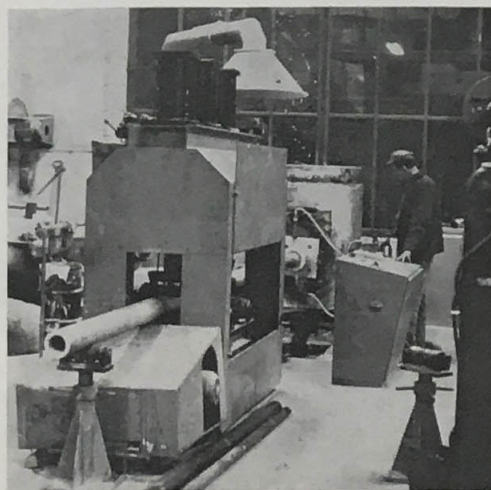


Bild 7. Horizontal arbeitende Stranggießanlage bei der Herstellung eines Rohres

Eine Anlage älterer Bauart für kleinere Fertigungsbereiche unter Verwendung eines ölbeheizten Warmhalteofens ist in *Bild 7* bei der Herstellung eines Rohres aus einer Aluminiumlegierung von 120 mm Außen-Dmr. wiedergegeben.

Betriebswerte

Die Erzeugungsleistung einer horizontalen Stranggießanlage ist von verschiedenen Einflußgrößen abhängig:

Ausführung der Stranggießanlage und der Kühler,
Größe der Graphitkokillen,
Zusammensetzung der Schmelze,
Temperatur der Schmelze,
Eigenschaften der Stränge,
Querschnitt der Stränge,
Form der Stränge.

So sind in Bild 8 die Gießleistungen für verschiedene Nicht-eisenmetalllegierungen bei Rundstangen von 50 mm Dmr. dargestellt. Die unterschiedlichen Leistungen ergeben sich durch die unterschiedlichen Erstarrungseigenschaften der Legierungen. Durch gleichzeitige Fertigung von mehreren Strängen ist man in der Lage, die Leistungen zu vervielfachen. Außer der Zusammensetzung der Schmelze ist die Erzeugungsleistung sehr stark abhängig vom Querschnitt und von der Form der Stränge. Dazu ist zu bemerken, daß die vorgenannten Werte ohne Verwendung einer Sekundärkühlung erzielt wurden und selbstverständlich unter Verwendung einer solchen Zusatzkühlung und bei Anwendung von Spezialkühlern bei einigen Legierungen wesentlich erhöht werden können.

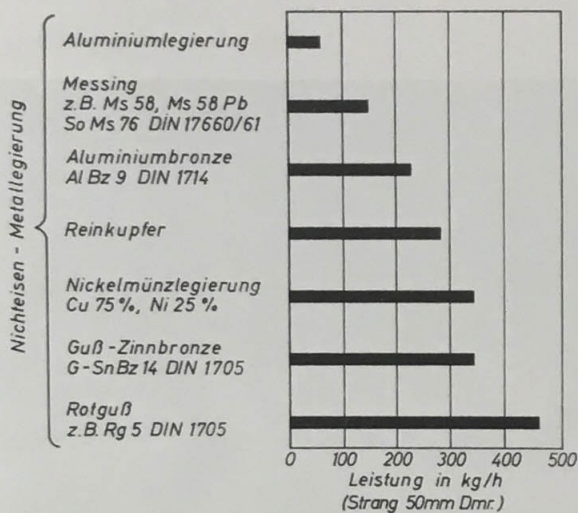


Bild 8. Erzeugungsleistungen beim Stranggießen von verschiedenen Metalllegierungen

Bei Verwendung des gleichen Kühlsystems ohne Zusatzkühlung ergeben sich die Erzeugungsleistungen für Messing in Abhängigkeit vom Querschnitt wie in Bild 9 dargestellt. Die hier gezeigten Erzeugungswerte sollen lediglich die Tendenz wiedergeben; die tatsächlichen Leistungen können auf Grund von Betriebsbedingungen abweichend sein. So ergibt sich z. B. mit einem Spezialkühler für eine Platte im Format 254×12,7 mm aus Messing 63 eine Leistung von 24 m/h gleich 660 kg/h.

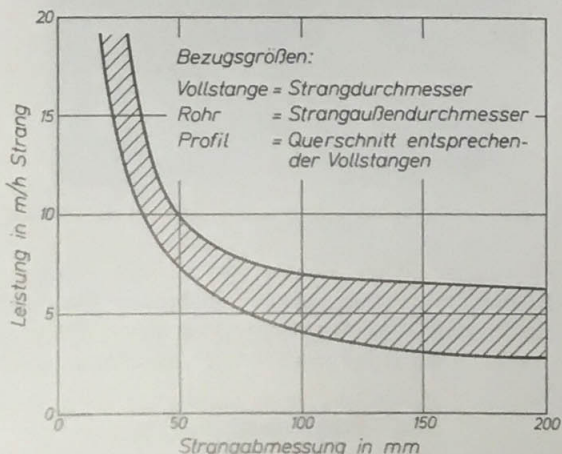


Bild 9. Richtwerte für die Erzeugungsleistung bei Stranggußstangen unterschiedlichen Querschnittes aus Messing

Die Ziehbewegung beim Stranggießen ist keine vollkontinuierliche Bewegung, sondern verläuft schrittweise. Diese Schritte werden von einem Schalt-pult aus überwacht und eingestellt und können bei vollelektronischer Steuerung in sehr weiten Grenzen verändert werden. So ist es z. B. möglich, einen Ziehrythmus mit einer Frequenz von rd. 1000 Schaltungen je Minute zu wählen. Die Schrittlänge kann zwischen 0,1 und 80 mm verändert werden und die Zieh-pause zwischen 0,1 und 30 s. So kann man die für jede Legierung und den für jeden Verwendungszweck günstigsten Ziehrythmus einstellen. Je kürzer die Ziehlänge ist, desto gleichmäßiger wird das Gefüge, dabei sinkt die Erzeugungsleistung, und die Oberflächenbeschaffenheit der Stränge kann sich verschlechtern. Eine vollkontinuierliche Ziehbewegung ist ungünstig, da dann häufig Fehler in der Oberfläche der hergestellten Stränge durch Risse und Unebenheiten auftreten und die Erzeugungsleistung erheblich sinkt.

Bild 10 zeigt Bänder vom Querschnitt 80×10 mm aus Aluminiumbronze mit 5% Al, 2% Ni, die mit unterschiedlichen Ziehlängen gefertigt worden sind, und zwar von 0,1, 10 und 20 mm. Die Oberflächengüte der mit 0,1 mm Ziehlänge hergestellten Bänder ist hervorragend, jedoch ist die Erzeugungsleistung geringer als bei einer Ziehlänge von rd. 20 mm. Die Größe der einzustellenden Ziehlänge ist somit abhängig von der verwendeten Metalllegierung, dem zu gießenden Querschnitt und dem Verwendungszweck der Stränge.

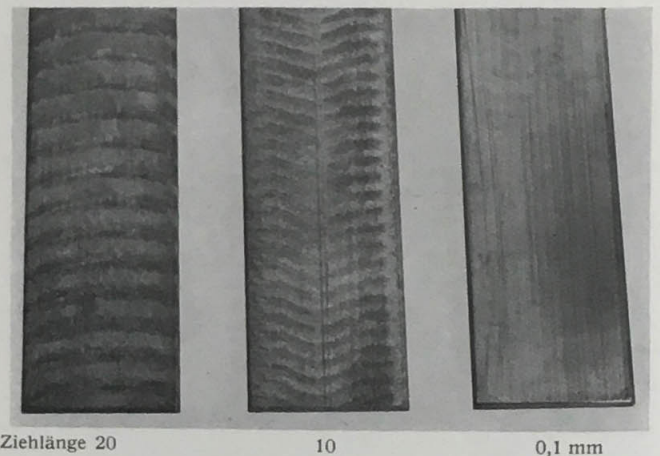


Bild 10. Bandabschnitte aus Münzenbronze, hergestellt mit verschiedenen Ziehlängen

Die maximal mögliche Fertigungsdauer ist abhängig von der Standzeit der verwendeten Graphitkokillen. Die Graphitsorten für Stranggießkokillen wurden ständig verbessert und sind heute von hoher Güte, so daß das Stranggießen lange Fertigungszeiten erlaubt, falls diese notwendig sind. Die Standzeit der Graphitkokillen ist von verschiedenen Einflußgrößen abhängig: Graphitqualität, Zusammensetzung der Schmelze, Querschnitt der Stränge, Form der Stränge und Betriebsweise der Anlage. Unter Berücksichtigung dieser Einflußgrößen können Fertigungszeiten zwischen 50 und 200 h erreicht werden.

Bronzelegierungen z. B. greifen die Kokillen nur wenig an und erlauben deshalb längere Fertigungszeiten, während beispielsweise bei Messing die sich bildenden Oxide die Haltbarkeit der Kokille herabsetzen können. In einem großen Metallwerk werden unter anderem auf einer waagrecht arbeitenden Stranggießanlage Messingbolzen in den verschiedensten Qualitäten im ununterbrochenen Sechstagesbetrieb hergestellt. Diese Anlage arbeitet fast vollautomatisch, lediglich die Ziehgeschwindigkeit muß gelegentlich korrigiert werden; und in bestimmten Zeitabständen wird Messingschmelze eingefüllt. Die Stangen werden automa-

tisch abgesägt und weiterbefördert, anschließend geschält und auf Warmpressen zu Rohren verarbeitet. Die Lebensdauer der Graphitkokillen beträgt hierbei mehr als 100 h, d. h., nach über 100 h ununterbrochener Betriebszeit veränderte sich der Außendurchmesser der hergestellten Messingstangen um weniger als 0,1 mm.

Teilweise ist es möglich, diese Kokillen nachzuarbeiten und für größere Abmessungen wieder einzusetzen. Horizontal arbeitende Stranggießanlagen sind für häufigen Formatwechsel oder häufigeren Legierungswechsel genauso gut geeignet wie für lange Fertigungszeiten mit stets gleichbleibendem Programm. Kurze Fertigungszeiten von nur einigen Stunden sind also ebensogut möglich wie längere Fertigungszeiten von einigen Tagen. Die besondere Art der Anbringung von Kühlern und Kokillen an den Warmhalteöfen erlaubt ein schnelles Wechseln der Formate bei einer großen Betriebssicherheit.

Fertigungsbeispiele

Ein durch Stranggießen hergestelltes Erzeugnis weist in der Regel wesentlich bessere mechanische Eigenschaften auf als durch andere Verfahren hergestellte Produkte. Aus dem Vergleich für Rotguß Rg 5 in *Tafel 2* ist zu ersehen, daß die mechanischen Werte beim Strangguß wesentlich günstiger als beim Sandguß sind. Dies ist auf die große Erstarrungsgeschwindigkeit und auf das sich dadurch bildende feine Gefüge zurückzuführen. Außerdem ist die Oberflächenbeschaffenheit der hergestellten Erzeugnisse von hoher Güte.

Tafel 2. Vergleich der mechanischen Eigenschaften von Sandguß und Strangguß bei Rotguß Rg 5

	Stangendurchmesser 60 mm — Rg 5			
	Streckgrenze in kp/mm²	Zugfestigkeit in kp/mm²	Dehnung in kp/mm²	Brinellhärte in kp/mm²
Sandguß	8 bis 10	15 bis 24	10 bis 18	60 bis 80
Strangguß	14,5	29,0	22,5	85

Die auf der Stranggießanlage hergestellten Vollstangen, Profile, Bänder und Rohre werden anschließend den verschiedensten Verwendungszwecken zugeführt. Im einfachsten Fall werden sie spanabhebend bearbeitet. Weiterhin sind sie ein wirtschaftlich herzustellendes hochwertiges Ausgangsmaterial für Extrusionspressen, Reck- und Ziehbanken zur Herstellung von Bändern, Rohren und Stangen (*Bild 11*) sowie für die Herstellung von Warmpreßteilen für die Armaturenindustrie. *Bild 12* zeigt Rundstangen von 25 mm Dmr. aus einer Messinglegierung und

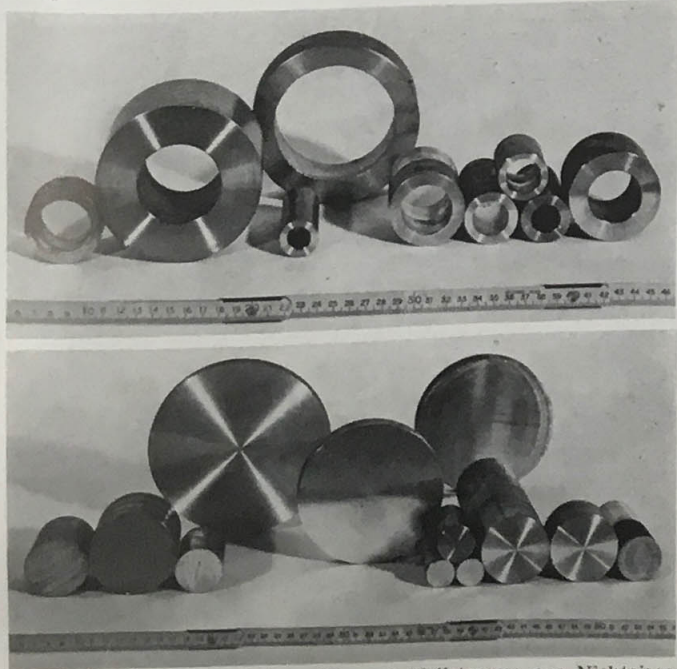


Bild 11. Verschiedene Rohrprofile und Vollstangen aus Nichteisenmetalllegierungen

die daraus hergestellten Warmpreßteile; zum Teil werden die Rundstangen vor dem Warmpressen geschält. Bänder in vielen Querschnitten werden zum größten Teil anschließend gewalzt (*Bild 13*). Hierbei entfällt zum Teil das Vorwalzen mit den erforderlichen Zwischenglühungen. Aus *Bild 13* ist auch das bisher breiteste Profil 500 × 20 mm eines Messingbandes aus Ms 58 ersichtlich. Dieses Band wird anschließend zu Messingblech gewalzt. Die mechanischen Eigenschaften und die Oberflächenbeschaffenheit dieses Bandes sind hervorragend und das Gefüge sehr feinkörnig.

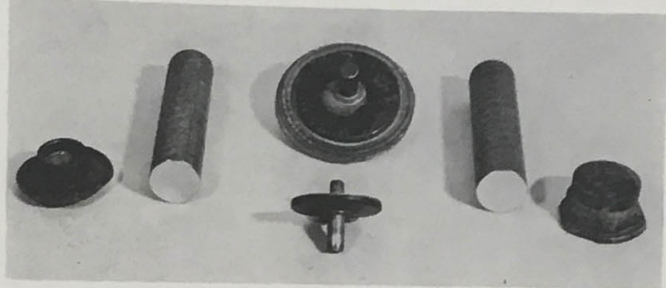


Bild 12. Rundstangen aus Messing und daraus hergestellte Warmpreßteile

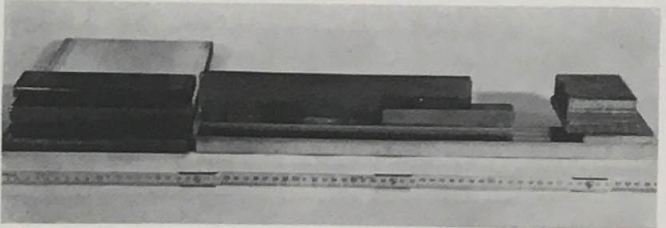


Bild 13. Verschiedene Bänder aus Nichteisenmetalllegierungen

Eine Makroätzung gibt in *Bild 14* die günstige Gefügeausbildung eines Messingbandes 350 × 12 mm wieder. Das Band wird auf einen Querschnitt von 355 × 1 mm ausgewalzt, wobei die absolut glatte Bandkante ohne jede tannenbaumförmige Aufwerfung die optimalen Gießvorgänge des Vormaterials besonders kennzeichnet.

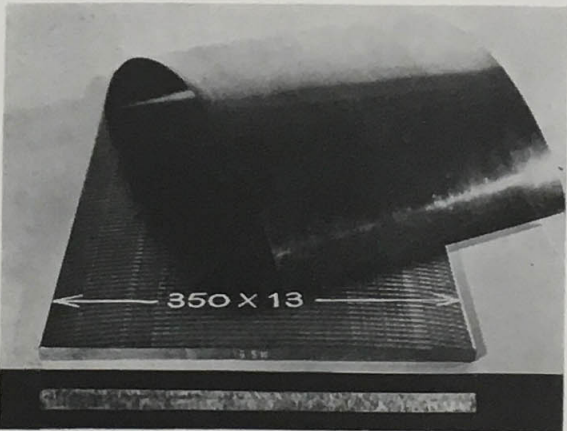


Bild 14. Messingband mit Walzprodukt und Makroätzung

Das Stranggießen von Kupfer-Nickel-Legierungen (Cu 74%, Ni 25%) stellt infolge der hohen Gießtemperatur von rd. 1400 °C große Anforderungen an die Verfahrenstechnik beim Stranggießen. Infolge der Erfahrungen im Umgang mit höher schmelzenden Legierungen besonders auf dem Gußeisensektor, ist es gelungen, diese Münzlegierungen in einwandfreier Güte im Stranggießverfahren herzustellen.

Zusammenfassung

Beim Stranggießen finden in neuerer Zeit horizontal arbeitende Anlagen wegen ihrer Vorzüge zunehmende Verbreitung. Aufbau, Bandelemente und Leistung neuzeitlicher horizontal arbeitender Anlagen für Nichteisenmetalllegierungen werden dargestellt. Für die vielseitige Verwendung der hergestellten Vollstangen, Profile, Bänder und Rohre werden Beispiele angeführt.

continuous

casting + rolling

finished

instead of

break down

rolling + rolling

finished

plates
horizontally
continuously cast

from

copper-tin alloys
copper-tin-zinc alloys
copper-lead alloys
copper-lead-tin alloys
copper-aluminium alloys
aluminium bronze, all specifications
copper-zinc alloys
copper-nickel alloys
copper-nickel-zinc alloys
copper-de-oxidized, low alloyed
copper-pure .OFC.
lead
zinc
tin

The process of horizontal continuous casting characterized by a horizontal mould (die) allowing the horizontal production of a metal profile of variable length.

The watercooled die, usually consisting of graphite, is mounted on the front of the holding furnace, and closed prior to production by a starter bar. The liquid metal in the holding furnace flows into the die and solidifies, thereby welding to the starter bar. The solidified bar is then drawn out of the die horizontally with a draw bar by means of a drawing mechanism. During production the holding furnace is refilled at regular intervals, thus enabling the continuous production of a plate.

For subsequent processing the plate can be

- milled by a plate milling machine on both sides during production
- or shot blasted
- or pickled
- cut to length with a cold cutting saw or shears
- or coiled.

The plates are usually cold rolled to thin gauge sheet, deep drawing sheet, sheet metal for punching.

Dependent on the cross section of the plates, continuous casting machines producing one, two or four strands can be operated:

Width	single strand	3/4"-25.1/4" (20-650 mm)
	double strand	3/4"-8" (20-200 mm)
	four strand	3/4"-4" (20-100 mm)

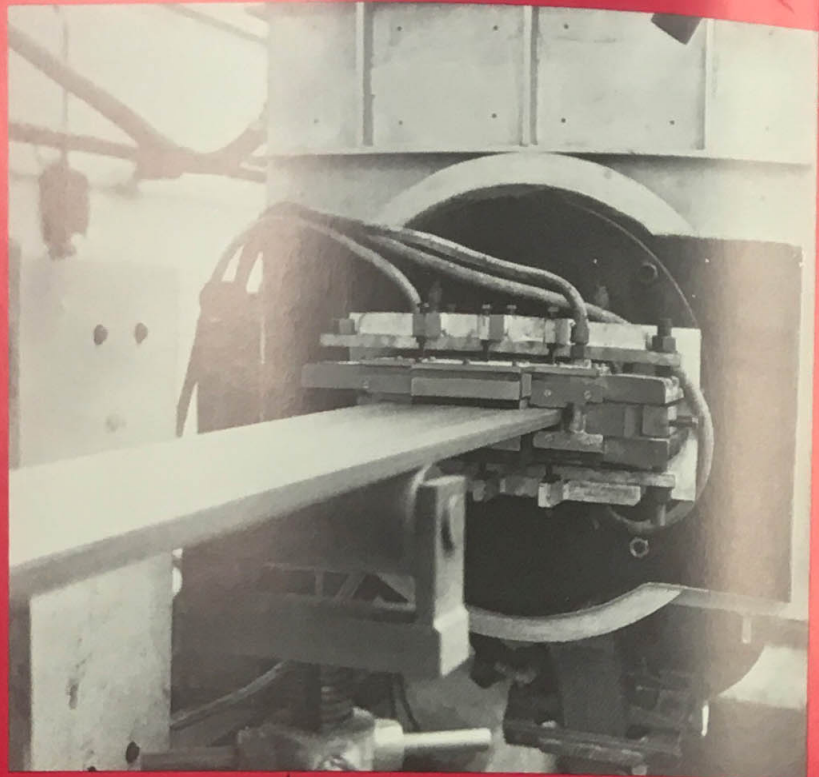
Thickness > 5/16" (> 8 mm)
minimum 4 2/3% of width up to 19.3/4" (500 mm);
minimum 3/4" (20 mm) for plate width above 19.3/4" (500 mm).

Cost calculation

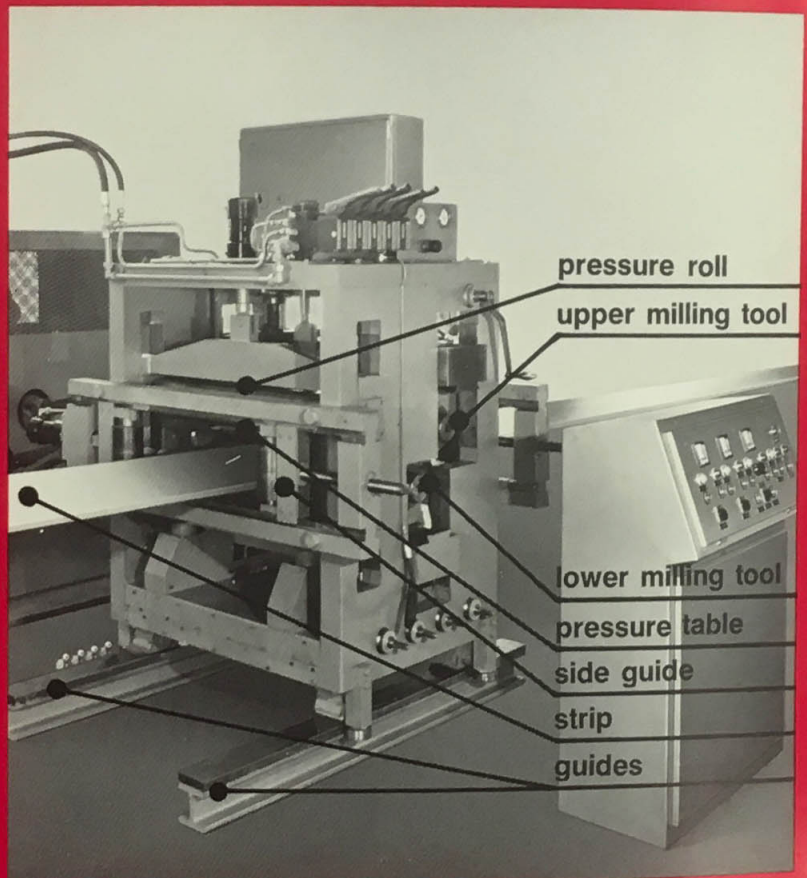
production example: brass plate 19.3/4" x 3/4" (500 x 20 mm)

a) capital investment for operational plant	DM	400 000.—
b) die cost for one graphite die for plate 19.3/4" x 3/4"	DM	900.—
c) die cost based on average die life of 120 h (5 days per week, 3 shifts per day)	DM/h	7.50
d) amortisation, assuming a total amortisation over 5 years (11 months per year, 20 days per month)	DM/h	15.15
e) possible loss of interest from capital 5 1/2% of d	DM/h	0.76
f) electricity 80 kW x 0.08 DM/kWh	DM/h	6.40
g) cooling water 6 m ³ /h x 0.60 DM/m ³	DM/h	3.60
h) heating oil 1 l/h x 0.10 DM/l to preheat the furnace once weekly	DM/h	0.10
i) refractories for furnace and inductor	DM/h	10.—
k) machine rate (sum of c-i)	DM/h	43.51
l) setting up time 5 1/2% of k	DM/h	2.18
m) lost time 5 1/2% of k	DM/h	2.18
n) supervision and administration 25 1/2% of k	DM/h	10.89
o) production cost (sum of k-n)	DM/h	58.76
p) cost for personnel (1 operator)	DM/h	15.—
q) liquid metal cost metal price: 3.20 DM/kg; production rate: 550 kg/h	DM/h	1 760.—
r) loss of metal, 4 1/2% of q	DM/h	70.40
s) total production cost/h (sum of o-r)	DM/h	1 904.16
t) net cost total production costs/h rate of production/h	DM/kg	3.46
u) total net costs minus material costs	DM/kg	0.26

This cost exercise is based on current operational cost figures obtained in our own works. These figures must be corrected to figures relevant at the actual site of the installation of the casting machine.



▲ Holding furnace. Useful capacity approx. 3300 lbs.
▼ Plate milling machine, largest plate width 25.1/4" x 4"



- 1 holding furnace
- 2 rollstands
- 3 control panel
- 4 drawing unit
- 5 plate milling machine
- 6 cutting equipment
- 7 holding device
- 8 roller table
- 9 coiler



**plates
continuously cast**





Technica

on continuous cast

with plate milling machines
with shot blasting equipment
with pickling baths
with cutting equipment
with coilers



Horizontal continuous casting plant, design Technica-Guss, producing a strip of copper-nickel (minting material)

Brass plate, cross section 25.6 x .8 ; macro-etching 10 % ammonium persulfate

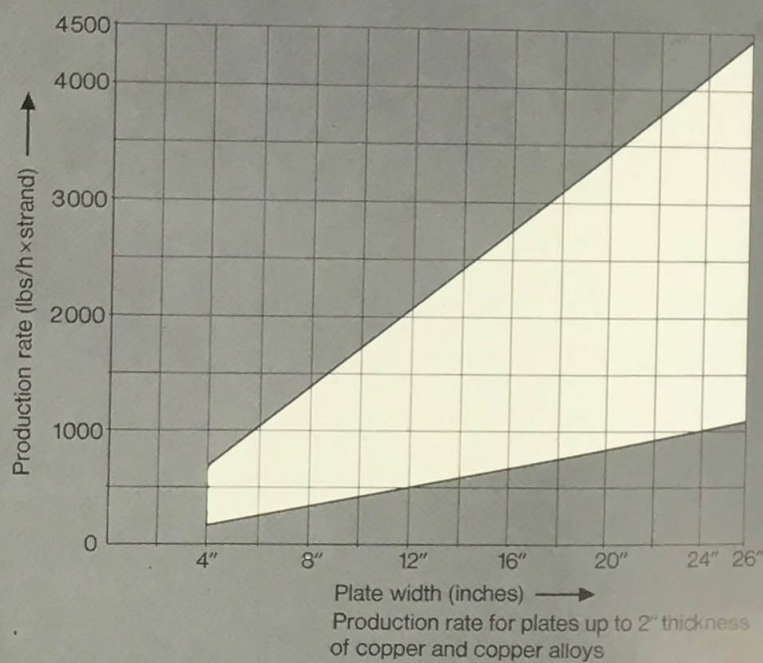
horizontally

ting plants



The rate of production

depends on the type of the horizontal continuous casting machine, the coolers and dies, the alloys and their characteristics of solidification as well as the cross sectional dimensions of the plates. The graph indicates reference values, which can deviate from the actual production rates.



horizontal continuous casting plants

for bars
plates
strips

projects
builds
installs



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Telex 68781 tgussd

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Telex 582 16 14

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Elk Grove Village, Illinois 60007
Telephone 312 437-4585
Telex 25-3875

Technica Casting Machine Company (U.K.) Ltd.

Great Britain Office:

29-30 High Street
Cardiff CF1 2DA, South Wales
Telephone Cardiff 387861
Telex 49108

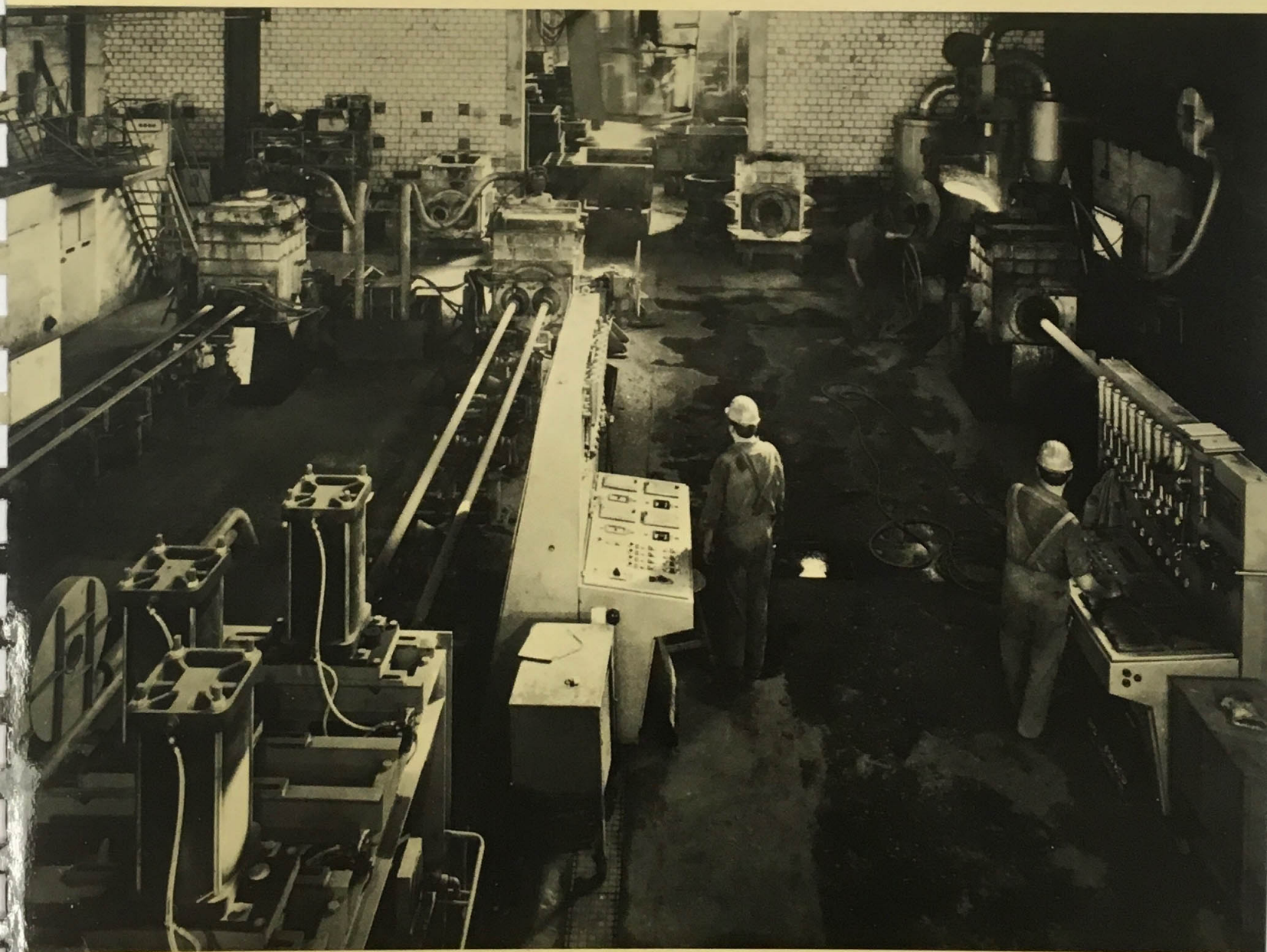
continuous
casting + finished
rolling

instead of

break down
rolling + finished
rolling

**Strangguß —
ein Begriff
für
modernes Konstruieren
und
wirtschaftliches Fertigen**

**Continuously cast material —
a conception
for
modern design
and
economical manufacture**





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Administration and
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750-D Nicholas Boulevard Elk Grove Village, Illinois 60007
Telephone: 312 437-4585 Telex: 25-3875

8/1/73

Amherst

NEW MINT

EQUIPMENT COST - ~~600,000~~ ^{No STRIP FACILITY}

Assume annual basis increase off 6%

Intermediate Mill - 2,300,000

Finishing Mill - 2,000,000

Slitter/Trimmer - 700,000

\$ 5,000,000 @ Summer 72 prices

Buy in Oct 76 for 2 year delivery

liquid delivery in Aug 77

coverage includes date in Aug 76

Alt. cost

~~Alt. cost~~

$$\therefore (1.06)^4 = 1.26$$

$$1.26 \times 5.0 =$$

$$\boxed{\$ 6.319}$$

5.7

Scrap Baler

3.0

0.3

Strip Baler

1.00

Blending Brewer

0.55

.65

Buy 5/12/77

Buy 5/12/77

Buy 5/12/77

Grinding & Cleaning Line

0.51

.51

Buy 5/177

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GSA Estimate Full Cost

12/23/74

(5000)

Site	2,000	
Buildings ^{450,000} @ .60/.10	<u>27,045</u>	29,045

Escalator to Oct 1977		8,365
-----------------------	--	-------

Equipment Including Installation and Escalator		22,000
---	--	--------

Contingencies Bldg & Equip @ 5%		2,971
------------------------------------	--	-------

Reservations (Lighting, Landscaping & miscellaneous)		<u>1,200</u>
---	--	--------------

Estimated Construction Cost		63,581
-----------------------------	--	--------

Land	1,500	
------	-------	--

Construction Management & Inspection	2,907	
---	-------	--

Design, design review, management	3,975	
--------------------------------------	-------	--

Relocation, Utilities	<u>900</u>	
	9,282	

9,282

Estimated Project Cost

\$ 72,863

For Antitrust Bill

\$ 8,000 in assets on hand
or in order

- 8,000

\$ 64,863

Note: 3.5 m already
appropriated

Inflation @ 10%

12/18/74

Full Equipment Costs - open order + relocation

Main Facility

Scrap Bailer		400,000	
Bleaching Casses	12 @ 127,500	1,402,500	(UED)
Corned & Clean	6 @ 180,000	1,080,000	
Cupset	9 @ 20,000	180,000	
Coin Presses	85 @ 80,000	6,800,000	
Count out Bag	60 @ 5,000	300,000	(Scher)
Overhead Equipment		600,000	
Electric Manufacturing		1,000,000	
Mechanical Handling Lines, Conveyors, etc.		3,000,000	
Miscellaneous (tools, Jacklifts, etc.)		1,000,000	(w)
Sub-Total		15,762,000	

Broag Coin Facility

30 Coin Presses @ 80,000	2,400,000
Automatic Packaging Lines	400,000
Miscellaneous Vibrators, Cleaning	400,000
Sub-Total	3,200,000

EQUIPMENT TOTAL	18,962,000
INSTALLATION COSTS	2,500,000
	21,462,000
Contingencies	2,000,000
	<u>\$ 23,462,000</u>

12/18/74

COINING DIVISION

Movable Assets:

	<u>OH</u>	<u>ON ORDER (SCHEDULED)</u>
PUNCH PRESS		
(2) 100 TON BLISS	\$106,000 as of 1/1/74	\$630,630 (6) 100 TON BLISS (8) REELS (Sched.)
ANNEALING		
(2) 2000# Anneal Line		(4) 4,500# Anneal Line (Sched.)
(2) 1,000# Anneal Line		
(1) 4,000# Anneal Line (40)	\$136,000 as of 7/1/73	
(3) 3'x10' Shaker		(2) 3'x10' Shaker (Sched.)
(2) 1 1/2'x7' Shaker		
UPSETTING		
(4) Auto. Upsetting		(4) Auto Upsetting
(3) Upsetting - Numismatics		\$70,334 for 4
COIN PRESS		
(11) Columbia - Mangle		(24) BLISS
(18) Bliss		
(30) Std. - Numismatics Mangle?		
(15) Double Deck Shakers		(7) Double Deck (Sched.)
COUNTING		
(9) Stations		(5) Stations (Sched.)

8/9/74

New Plant Equipment at Current Prices New orders & Reallocations

Bleaching Presses		
12 @ 90,000	=	1,080,000
Crossed & Clean Lines		490,000
6 @ 170,000	=	1,020,000
~ 154,000		925,000
Wyeast Mills		
9 @ 10,000	=	90,000
Coining Presses		5,695,000
85 @ 70,000	=	5,950,000
Count & Bag Machine		300,000
6 @ 5,000		
Analytical Equipment		200,000
Pack & Cellar Transportation		300,000
Miscellaneous		+ 700,000
SUB		9,940,000
Power, Comm Facility		2 from Baiter
30 Coin Presses @ 70,000 = 2,100,000		300,000
Cable Packaging Line		200,000
Misc		700,000
		3,000,000
		2,500,000
		500,000
		2,500,000
		12,400,000
		say 13,000,000
Distillation		2,000,000
Grand Total		15,000,000

UNITED STATES GOVERNMENT

Memorandum

TO : N. G. Theodore

DATE: October 4, 1972

FROM : S. Rosenbaum ✓

SUBJECT: New Denver Mint Equipment Criteria

A meeting was held on Thursday, September 28, 1972 to discuss the preliminary plant layout drawings and equipment for the new Denver Mint. The purpose of the meeting was to obtain input from personnel at the Philadelphia Mint based on their experiences with a new facility and equipment.

Those present were:

F. Breen
M. Henry
A. Leone
T. Robitaille
S. Rosenbaum
D. Rubolino
N. G. Theodore (Part time)

Item 1 - Truck Scale in Receiving Area

It is suggested that the Receiving Area be enclosed and that the railroad siding be installed so that approximately four cars can be accommodated in the building.

Item 2 - Metal Storage Area

No comments

Item 3 - Melting Metal Make-up Area

A shearing line to handle the quantities of cathodes required to meet the production parameters listed in the planning criteria would have to be extremely efficient, of large size or consist of multiple units.

Consideration should be given to paying a premium to receive sheared copper cathodes with in-house provisions for emergency shearing.



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

Alternate methods for cutting cathodes, other than shearing, should be studied.

Charge make-up weighing system currently in use in Philadelphia is satisfactory and is suggested for use in Denver.

If the operation of the Denver Mint would permit simultaneous melting of all coinage alloys, as was envisioned for Philadelphia, the steady flow of scrap to the melting area, for remelting, would cancel the need for a scrap storage area. However, if only one alloy at a time is melted, then a large scrap storage area will be needed.

Item 4 - Melting and Holding Furnaces

7
In the initial stage of design, provide for either a two strand drop or a three strand drop. It is not felt that it is practical to begin with two strand drops with the intention of adding a third strand at a later date.

If a two strand drop is selected, the melting and holding furnaces described in the criteria are oversized. It would be worthwhile to consider the use of a coreless furnace as a holding furnace as it offers the advantages of reserve melting capacity, can be used as a starter furnace and can be easily emptied.

Cranes in this area should be sized to handle a furnace fully loaded with a frozen charge.

Furnace feeders in use in Philadelphia are satisfactory.

It is recommended that individual hydraulic systems be obtained for each furnace.

Item 5 - Casting Machines

Some comments for this item have been covered under the melting furnaces.

It is suggested that the 32 inch dimension be retained, the thickness increased to 6 inches and the length selected so as to give a 14,000 pound ingot. *That's what we have*

Casting into tanks or the use of an elevator arrangement, similar to Philadelphia, requires further study and evaluation.

Good
Casting facility should have its own water supply system not connected to other systems in the plant. It is also recommended that the water should be recycled.

Item 6 - Downlayer

May not be required if an elevator system is selected.

Item 7 - Ingot Cropping and Weighing

Suggest that cropping saw not be in line with the reheat furnace entry tables. Also suggest conveyor configurations utilizing transfer tables.

Suggest that the ingot be weighed before and after cropping and that load cell type weighing systems be investigated.

Item 8 - Salvage Melting Area and Furnace Rebuild Area

It has not been found necessary to remelt salvage material in Philadelphia and may not be necessary in Denver. Furnace rebuild area is adequate.

Item 9 - Ingot Storage Area

Design appears adequate, however, it is suggested that provisions be made for outside storage.

Item 10 - Ingot Reheat and Transfer System

It is suggested that there be three furnaces. Even though there may be over capacity, it would provide adequate production in the event one furnace is down for maintenance.

Furnaces should be staggered on either side of rolling mill entry table in order to provide ease of maintenance.

Because the German Silver alloy listed in the design criteria may present a problem in attaining uniform heat, it is suggested that fuel fired furnaces be studied.

In regards to German Silver, it may be worthwhile to consider horizontal casting where thin strips can be cast and fabrication can be done by cold working techniques - Wertli process.

Item 11 - Ingot Hot Roll Facilities

Power requirements should not be established until more information is obtained as to the ingot size to be run and the pass schedules.

Spindles should be individually driven with matching speed motors.

Consideration should be given to having some capability of taking a reduction on the edges of slabs with the edge rolls.

Rolling mill pits should be adequately sized to allow for the removal of mill scale at regular intervals.

9. Consideration should be given to installing edge trimmers on the exit side of the hot rolling mill.

Special attention should be given to the guide system of mill on both delivery and exit sides.

22nd Suggest that the operators pulpit be enclosed and temperature and humidity be controlled.

Provisions should be made to permit screwdown adjustments while rolling.

Suggest that independent methods be used for removing coils from hot mill line without having to depend on the overhead crane.

Item 12 - Scarfing Mill

Suggest that the first stand and the second stand of scarfing mill be separated rather than built together. The space between them should be approximately 3 feet. This will provide for easy maintenance. If the suggestion to incorporate an edge trimmer as part of the hot mill is adopted, then there is no need to have edge millers on the scarfing machine.

Item 13 - Coil Storage-Strip Production Facility

No comments.

Item 14 - Elevators and Cranes - Strip Production Facility

The two 20 ton capacity freight elevators servicing the Mezzanine and the Balcony seem to be excessive, and should be studied.

Suggest that two cranes be used to service the hot mill area.

Item 15 - Scrap Baler

22nd We feel that one baler is not sufficient to service the facility, and recommend that scrap balers be located throughout the plant to serve areas where scrap is generated.

Item 16 - Intermediate Mill

Suggest a Gantry crane to service this mill.

Suggest incorporation of a reel winder in addition to the upcoiler.

Suggest that the X-ray gauge be capable of controlling thickness of strip when used in conjunction with the reel winder.

7. We do not feel that the special alloys should be rolled on this mill inasmuch as it would require a table of excessive length to accommodate an ingot of the dimensions given in the criteria.

Rolling special alloys on this mill would cause tracking of the rolls due to the narrow width of the ingot.

Investigate the use of roll levelers.

If possible, the design of the handling system for coils off this mill should be based on floor level rather than pit design.

Item 17 - Finishing Mill

Attempt to have coils and equipment at ground level rather than pits.

Special alloys should not be run on this mill because of narrow width, which would cause tracking of the rolls.

Investigate the use of roll levelers.

Item 18 - Slitter - Trimmer

No comments.

Item 19 - Coil Storage Area in Coining Facility

No comments.

Item 20 - Coiled Strip Annealing

7 for
Phil
There does not appear to be any practical reason why the annealing facilities should be required in Denver. If it is planned to install cladding equipment in the future, then it should be sufficient to allow space for annealing facilities when required.

Item 21 - Blanking Presses

Recommend that the Mint standardize on 150 ton blanking presses.

In lieu of scrap choppers, we suggest that blanking scrap be recoiled and returned to the melting area in coil form. *would eliminate noise*

Item 22 - Blank Storage

No comments.

Item 23 - Active Tank Storage for Blank Annealing

No comments.

Item 24 - Blank Annealing and Cleaning Lines

Suggest the use of two atmosphere generating units rather than one.

Item 25 - Annealed Blank Storage

No comments.

Item 26 - Unsetting Mills

No comments.

Item 27 - Unset Blank Storage

No comments.

Item 28 - Coin Presses

Provisions should be made for weighing for accountability.

yes The general area should be partitioned into separate areas for blanking, annealing and coining to minimize the effect of noise.

Serious consideration should be given to providing windows in this general area.

Item 29 - Count and Bag Machines

No comments.

Item 30 - Coin Storage Vaults

No comments.

Item 31 - Elevators and Cranes - Coining Facility

No comments.

Item 32 - Analytical Equipment

Unless it is intended to assay for gold and silver by the fire assaying process there does not seem to be any need for this type of equipment.

Suggest obtaining an optical comparator and stereoscopic microscopic equipment for quality control purposes.

Equipment for the rapid determination of sulfur, oxygen and carbon should also be obtained.

Item 33 - Roll Grinding Equipment

Because the hot rolling and cold rolling areas are planned for locations in separate parts of the facility, we suggest that a roll grinder be obtained for each area.

Item 34 - Coin Die and Collar Manufacturing

No comments.

Item 35 - Proof Coin Facility

No comments.

Item 36 - Administration and Maintenance Building

No comments.

Miscellaneous

There does not seem to be any provision for a coin rolling machine. Is this an oversight?

S. R. Rosenbaum
S. Rosenbaum

cc: G. Ambrose (Wash.)
F. Breen
A. Goldman (Wash.)
J. Keller
A. Leone
F. MacDonald (Wash.)
T. Robitaille
D. Rubolino

Blair 7/6/72

<u>Item</u>	<u>Basic</u>	<u>Spares</u>	<u>Improvement</u>	<u>Freight</u>	<u>Total</u>
Hot Roll mill	3,560,000 (485)	468,000	70,400	72,700	4,171,100
Intermediate mill	1,570,000 (214)	206,000	31,000	32,200	1,839,200
Finish mill	1,787,000 (203)	235,000	35,200	36,400	2,093,600
Slitter/ Trimmer	423,000 (038)	50,000	8,400	8,700	496,100
	<u>7,340,000</u>	<u>965,000</u>	<u>145,000</u>	<u>150,000</u>	<u>8,600,000</u>
	965,000				
	145,000				
	150,000				
	<u>8,600,000</u>				

Intermediate 1,839,200
 Finish 2,093,600
 Slitter/Trimmer 496,100
 4,428,900

Buy w delivery Aug '77

6% pay per price increase
 Est Cost = $(1.06)^4 \times 4,500,000 = 5,700,000$

1.602

102

NEW MINT
Production Equipment Procurement

FY 76

Barking Presses, 8 @ 90,000	- 720,000
Grinding & Cleaning Lines, 3 @ 170,000	- 510,000
Corn Presses, 4 @ 90,000	3,600,000
Die Manufacturing Equip	300,000
Scrap Baler	300,000
Truck scale & Miscellaneous	300,000
	5,730,000

FY 77

Upset Mills 5 @ 12,000	60,000
Count & Bag Machines	200,000
Catalytic Equipment	200,000
Forklifts, Bag Mgmt. Equip,	700,000
Battery Chargers, Misc	
	1,160,000

Total 6,890,000

New Mint

6/24/74

EQUIPMENT COSTS - Purchased Items

Inflation of .6% per year

Blanking Presses

Need 12 mm x 8 row @ 50,000 = 720,000

Coiled & Clean Lines

Need 6 mm 3 @ 170,000 = 510,000
(2)

Upset Drills

Need 9 mm x 50 @ 12,000 = 60,000

Coin Presses

Need 85 mm x 45

40 @ 90,000 = 3,600,000

Coin & Bag

200,000

Analytical Equipment

200,000

Pie manufacturing

300,000

Miscellaneous - Sealer, Traveler

Lift Bag

Manufacturing, Billing

Charges, Bonus etc

1,000,000

+ Jan 80 300,000

6,850,000

6,590,000

Bank Coin Equipment

3500,000

10,090,000

Contingency

1,000,000

11,090,000

Gen George M. Brown
Aug 9, 1974

Bulky Program for Denver

24 Blin 6K 225 Coining Presses
- Delivery March-May 1975

2 Blin 100 Ton Blanking Presses
Delivery in 60 weeks (Oct, 1975)

Oct 1, 1974

Award for 4-100 Ton Blanking Presses
Delivery in about 70 weeks
(in Dec, 1975)

1-4,000 \$/hr Cleaning & Correlating Unit

4 - upset mills

New print - Full Cost (Equipment)
 New order + Reorderd from Printpoint
 (Includes price escalation)

Bleeding Presses

12 @ 90,000
 (8 new)

= 1,080,000

Corned & Clean Liner

6 @ 170,000

= 1,020,000

Lyzer Miller

9 @ 12,000

108,000

Corn Presses

85 @ 100,000

8,500,000

Count & Bag Machine

60 @ 5,000

300,000

Ordythed Equipment

200,000

Die & Collar room Equipment

300,000

Miscellaneous (Scales, Travel desk,
 Fork lifts, Order Changer, etc)

1,000,000

SUB 12,508,000

Prod Corn Facility

30 Corn Presses @ 100,000 = 3,000,000

Automatic Packaging Machine 200,000

Misc Equipment 300,000

\$ 3,500,000

3,500,000

16,000,000

1,000,000

17,000,000

Contingency

CAPACITY OF PORTER CASTING MACHINE Aluminum

Cast Width - 62 inches
 Thickness - 0.27 inches
 Rate - 35 inches/minute

240 Days/year
 Assume - ~~5 Days/week~~ 352.6 hr
 Downtime - 15%

$$62 \times 0.27 \times 35 \times 0.095 \left(\frac{165}{\text{min}} \right) = 58 \text{ lbs/minute}$$

$$58 \times 60 \times 24 \times .85 = 70,992 \text{ lbs/machine/day}$$

Avg 70,000 lbs

$$\begin{array}{r} 240 \text{ Days} \\ 70,000 \\ \hline 16,800,000 \text{ lbs/Machine/Year} \end{array}$$

$$\text{Requirement } \frac{48,000,000 \text{ lbs}}{16,000,000} = 3 \text{ Machines}$$

12 4, 4 6, 10 1, 05
24

25

Bell Annealers
Tony Leone

6 Stations

DIMENSIONS

Capacities

6 Annealers
2 Furnaces

5,000 #/hr - each furnace
Furnace with three stands

10 hour testing or

37 Hour Cycle

Load to unload

1800 #/hr cupro-nickel } Per Unit
2300 #/hr Copper }

Load with 12 coils @ 2300 #'s
15" X 40"

2300
12
4600
2300
27600

Dimensions

12 ft x 12 ft for each stand
13 ft high above floor
7 ft air



OFFICE OF
SUPERINTENDENT

THE DEPARTMENT OF THE TREASURY

UNITED STATES MINT
DENVER, COLO. 80204

July 12, 1972

Mr. R. F. McCurdy
Torin Corporation
Kennedy Drive
Torrington, Connecticut 06790

Dear Mr. McCurdy:

Reference is made to your letter dated June 30, 1972.

We realize that, of necessity, our initial proposal lacks a great deal of specific information which you eventually must have in order to design and price the coil milling equipment we will require in the new Denver Mint. Wherever possible, however, we will provide the best answers available at the present time to the questions contained in your letter. Our experience in this area of hot rolling and coil milling is extremely limited, consequently we are keenly interested in encouraging the supplier of this equipment to recommend a unit to us, based on his experience, which will best suit our overall goals.

Your suggestion to meet with us in Denver to discuss such details is most welcome. It would appear that we should proceed with plans for such a meeting in the fall at a time when arrangements have been further finalized with the architecture-engineering contractor and equipment criteria have been specifically developed.

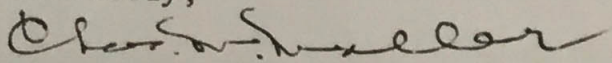
Answers to your questions, in the same order as asked:

1. German Silver coils, if produced, would be coil milled. They would have roughly the same weight and dimensions as gilding metal and cupro-nickel coils; i.e. 14,000 lbs. 32" wide and 0.400" thick.
2. It is possible that partial ingots (due to casting operation difficulties, casting remaining "heels" left in furnaces, etc.) of less than the standard 7 tons may be produced from time to time. These might weigh as little as 2 - 3 tons. If they can be hot rolled to 0.400" thickness, we would likewise wish to mill them.

3. By "bar" we assume you mean the hot rolled ingot or finished slab from the hot mill. 32 inches would be the minimum width with a maximum of approximately 33 inches.
4. Minimum bar thickness could be as low as 0.380" and a maximum as high as 0.500". We have limited knowledge of what to expect the crown to be, but it should be minimal. Hot mill rolls will be 34" diameter and somewhere between 38" and 42" in length. Experience with Olin and Revere should give some general indication as to expected crown.
5. The Coil Mill will not be in line with the Hot Mill.
6. Slab Mill Line will be for a coil to coil operation. A standard coil will have 20" I.D. and 40" O.D. O.D. of shorter coils would vary according to weight of initial ingot. Present thinking is that tails are not involved with either feed or discharge coils.
7. This question can perhaps be answered at a later date as you suggest.
8. Present plans call for a coil milling unit which charges from the right and discharges to the left as the operator faces the line.
9. Metal line height is presently undetermined.
10. Basically unlimited, to meet supplier's recommendations for optimum performance of his equipment.
11. A. Approximately 60 feet from the Slab Mill Line.
B. Yes, as well as provisions for sound suppression.
C. Chips are to be transported to a storage area about 60 feet from the Coil Mill. They will be baled here and returned to the melting area.
D. Building design will provide clearance for such duct work.
12. These items can best be discussed in the future.

We trust that the above information will be adequate to enable you to provide the basic estimates requested in our letter dated June 7, 1972.

Sincerely,



Charles M. Miller
Acting Superintendent

Equipment Installation

RANDOLPH ENGINEERING COMPANY

PITTSBURGH, PA. 15241

PHONE 412: 941-8800



INSTALLATIONS - RELOCATIONS

P.O. Box 12507

July 7, 1972

Mr. Frank W. Rhea
Facilities Project Manager
Bureau of the Mint
Denver Mint
320 West Colfax Avenue
Denver, Colorado 80204

Dear Mr. Rhea:

Thank you for your letter of June 28, 1972 and your detailed outline regarding all phases for construction of the new Denver Mint.

As you may recall, our company specializes in installation and relocation of machinery and equipment. We are prepared to perform a turn-key installation which includes the scheduling, planning, electrical, mechanical, rigging, millwrighting, transportation, and all other work and services required for a completed job.

We do understand that you anticipate awarding a contract for the installation of machinery and equipment about September of 1974.

With your permission, we would like to maintain periodic contact with you as to the progress of this project.

Again, may we convey to you our sincere interest in receiving an opportunity to quote this equipment installation.

Sincerely yours,

Robert L. Shaw
Vice President

RLS:jls

Torin Corporation

F. RHEA

Kennedy Drive
Torrington, Connecticut 06790
(203) 482-4422

RECEIVED

JUL 3 1972

OFFICE OF
SUPERINTENDENT
U.S. MINT AT DENVER

June 30, 1972

The Department of the Treasury
United States Mint
Denver, Colorado 80204

Att: Mrs. Betty Higby, Superintendent
Ref: Your Letter of June 7, 1972

Dear Mrs. Higby:

We received your above-referenced letter which contains specifications and information concerning the construction of a new coin minting facility at Denver, Colorado. As you may know, our company designed and manufactured the new modular milling equipment that was installed at the new minting facility in Philadelphia. In addition, we have other installations of similar equipment at Olin Mathieson, Revere Copper & Brass, Bridgeport Brass, and Hussey Copper Range.

Additionally, for well over 50 years we have furnished Slab Milling equipment in one form or another to practically every copper and brass mill in the U.S.A. and have made many foreign installations.

Our association with the Philadelphia Mint was enjoyable as well as successful, and we are confident that with our many years of experience in this field, we can make a significant contribution to the success of the new Denver facility.

We have reviewed your specifications and have several questions which will obviously have an impact on the final price of our equipment. Our questions are listed as follows:

1. Will German Silver be Slab Milled? If so, will it be in 14,000 lb. coils?
2. Assuming the coil weight to be 14,000 lbs. maximum, what will be the minimum coil weight?
3. We understand the bar width to be 32" maximum; what would be the minimum bar width?

The Department of the Treasury
United States Mint

Page 2

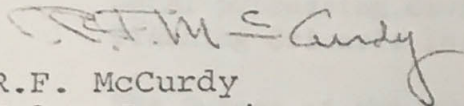
4. Maximum bar thickness is .400; what is the crown, if any? Also, what is the minimum bar thickness?
5. Will the Slab Milling Line be in-line with the Hot Mill? If so, what is the maximum and minimum bar length?
6. Will the Slab Mill Line be for coil-to-coil operation? If so, what will be the minimum coil I.D. and O.D. at the pay-off and upcoiler? Also, if the coils with tails are required at both entry and exit of the Mill, we will need specifics.
7. We would like to know the depth of cuts on all four sides with relation to the line speed. We would like to discuss this in detail at a later date.
8. What hand is this Slab Milling Line to be; that is, will the metal flow be from right to left? Or left to right? That is, when facing the Slab Milling Line from the operator's side.
9. What will be the metal line height?
10. What are the current characteristics; that is, voltage, phase, and cycles?
11. The following questions concern the chip exhaust system:
 - A. Where is the location of chips to be unloaded in relationship to the Slab Milling Line?
 - B. Will the air pollution device be required?
 - C. Are chips to be conveyed or dumped in tote boxes; in other words, describe how you intend to handle chips.
 - D. Has the building been designed giving clearance heights; these will be necessary for ductwork clearance.
12. We will need U.S. Mint electrical, hydraulic, and mechanical specifications.

The Department of the Treasury
United States Mint

Page 3

When answers are available, we would be most pleased to meet with you in Denver to discuss our equipment and your proposed facility in more detail. In the meantime, we await your early reply to our above questions.

Sincerely,



R.F. McCurdy
Sales Supervisor

RFM:sue



OFFICE OF
SUPERINTENDENT

THE DEPARTMENT OF THE TREASURY

UNITED STATES MINT

DENVER, COLO. 80204

June 7, 1972

*John
File
Criteria*

The Torrington Manufacturing Company
Machine Division
50 Kennedy Drive
Torrington, Conn. 06791

Gentlemen:

Congress has authorized construction of a new coin minting facility at Denver, Colorado. The new facility is scheduled to be operating in about six years. It is to be equipped with the latest proven metal processing devices. For your information, a copy of the Planning Criteria for this project is enclosed.

The Bureau of the Mint office in Washington, D. C. has delegated responsibility to the Denver Mint for gathering preliminary technical and cost estimates on equipment required for this project. At present we need estimates on a coil milling machine which will de-scale coiled strip on all sides. These estimates should include information on equipment space, lump sum cost at current prices of such an installed machine including all auxiliaries, support equipment and power requirements, as well as manufacturer's lead time requirements. We would appreciate your recommendations and estimates as soon as possible.

Our tentative plans are to equip this section of the plant with:

1. Semi-continuous casting equipment

Ingot size: 5" x 32" x 23'

Alloys: Bronze - 95% Cu, 5% Zn
Cupro-nickel - 75% Cu, 25% Ni
German silver - 70% Cu, 18% Zn, 12% Ni
Rate: 13.8 tons/hr in three shifts - i.e., 2
ingots/hr

2. Breakdown mill, conveyor, spray chamber, cropper, coiler, coolant filter system

Type: Two (2) high reversing hot mill
Reduction: 5" to 0.400"
Speed: Variable
Rate: 41.4 tons/hr in one shift, 5.5 slabs/hr

3. Milling machine to descale coiled strip on all sides.
Includes flattener, uncoiler, coiler.

Type: Rotating blades
Scrap removal: Pneumatic
Reduction: 0.400" to 0.350"
Speed: 80'/min or comparable speed to enable
milling of 336 tpd (48 coils weighing
7 tons each per day) on one operating
shift.

Sincerely,

(Mrs.) Betty Higby
Superintendent

WHD:edg

cc: Deputy Superintendent
Melting Division
H. Frost, Jr.
F. Rhea ✓



OFFICE OF
SUPERINTENDENT

THE DEPARTMENT OF THE TREASURY

UNITED STATES MINT

DENVER, COLO. 80204

June 7, 1972

The McKay Machine Company
3805 - T Hendricks
Youngstown, Ohio 44501

Gentlemen:

Congress has authorized construction of a new coin minting facility at Denver, Colorado. The new facility is scheduled to be operating in about six years. It is to be equipped with the latest proven metal processing devices. For your information, a copy of the Planning Criteria for this project is enclosed.

The Bureau of the Mint office in Washington, D. C. has delegated responsibility to the Denver Mint for gathering preliminary technical and cost estimates on equipment required for this project. At present we need estimates on a coil milling machine which will de-scale coiled strip on all sides. These estimates should include information on equipment space, lump sum cost at current prices of such an installed machine including all auxiliaries, support equipment and power requirements, as well as manufacturer's lead time requirements. We would appreciate your recommendations and estimates as soon as possible.

Our tentative plans are to equip this section of the plant with:

1. Semi-continuous casting equipment
Ingot size: 5" x 32" x 23'
Alloys: Bronze - 95% Cu, 5% Zn
Cupro-nickel - 75% Cu, 25% Ni
German silver - 70% Cu, 18% Zn, 12% Ni
Rate: 13.8 tons/hr in three shifts - i.e., 2 ingots/hr.
2. Breakdown mill, conveyor, spray chamber, cropper, coiler, coolant filter system.
Type: Two (2) high reversing hot mill
Reduction: 5" to 0.400"
Speed: Variable
Rate: 41.4 tons/hr in one shift, 5.5 slabs/hr.

3. Milling machine to descale coiled strip on all sides.
Includes flattener, uncoiler, coiler.

Type:	Rotating blades
Scrap removal:	Pneumatic
Reduction:	0.400" to 0.350"
Speed:	80'/min or comparable speed to enable milling of 336 tpd (48 coils weighing 7 tons each per day) on one operating shift.

Sincerely,

(Mrs.) Betty Higby
Superintendent

WHD:edg

cc: Deputy Superintendent
Melting Division
H. Frost, Jr.
F. Rhea ✓



OFFICE OF
SUPERINTENDENT

THE DEPARTMENT OF THE TREASURY

UNITED STATES MINT
DENVER, COLO. 80204

June 6, 1972

Ascast Corporation
Attention: Mr. G. Fred Kolle
P. O. Box 98
Creek Road
Delanco, New Jersey 08075

Gentlemen:

Congress has authorized construction of a new coin minting facility at Denver, Colorado. The new facility is scheduled to be operating in about six years. It is to be equipped with the latest proven metal processing devices. For your general information, a copy of the Planning Criteria for this project is enclosed.

The Bureau of the Mint office in Washington, D. C. has delegated responsibility to the Melting Division of the Denver Mint to gather preliminary technical and cost estimates on equipment required for the melting and casting areas. At present we need estimates of equipment space, lump sum cost at current prices of each installed casting machine including all auxiliaries, support equipment and power requirements, as well as lead time manufacturing information. We would appreciate your recommendations and estimates as soon as possible.

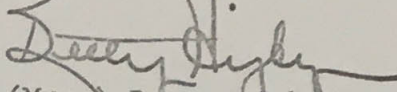
Our tentative plans are to equip this section of the plant with:

1. Two melting and casting bays, each equipped with three core-type induction melting furnaces which discharge to a similar holding furnace from which all casting will be done.

2. Each casting unit will be semi-continuous, direct chill type, at least twin strand with possible potential for three strand expansion, capable of casting two ingots 5" x 32" x 23" simultaneously. The alloys will be 1. Gilding Metal (95% Cu - 5% Zn) 2. Cupro-nickel (75% Cu - 25% Ni) or 3. German Silver (70% Cu - 18% Zn - 12% Ni). Each such unit should have the capacity to produce two such ingots comfortably in a one hour forty-five minute cycle. The overall casting rate for both units should be 13.8 tons/hr for a three shift operation. Our present thinking is that the casting machines will be enclosed in sealed chambers below ground level, and ingots will be removed by overhead crane.

3. Ingots will be deposited on an Easy-Down type of unit, transported by power conveyor to an in-line cropping saw, then to an in-line scale, then to storage or further processing.

Sincerely,

A handwritten signature in dark ink, appearing to read "Betty Higby". The signature is fluid and cursive, with a large initial "B" and a long horizontal stroke extending to the right.

(Mrs.) Betty Higby
Superintendent



OFFICE OF
SUPERINTENDENT

THE DEPARTMENT OF THE TREASURY

UNITED STATES MINT
DENVER, COLO. 80204

Carter

June 6, 1972

Loma Machine Manufacturing Company, Inc.
288 Fifth Avenue
New York, New York 10001

Gentlemen:

Congress has authorized construction of a new coin minting facility at Denver, Colorado. The new facility is scheduled to be operating in about six years. It is to be equipped with the latest proven metal processing devices. For your general information, a copy of the Planning Criteria for this project is enclosed.

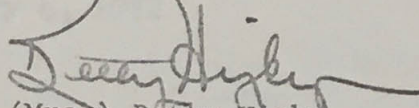
The Bureau of the Mint office in Washington, D. C. has delegated responsibility to the Melting Division of the Denver Mint to gather preliminary technical and cost estimates on equipment required for the melting and casting areas. At present we need estimates of equipment space, lump sum cost at current prices of each installed casting machine including all auxiliaries, support equipment and power requirements, as well as lead time manufacturing information. We would appreciate your recommendations and estimates as soon as possible.

Our tentative plans are to equip this section of the plant with:

1. Two melting and casting bays, each equipped with three core-type induction melting furnaces which discharge to a similar holding furnace from which all casting will be done.
2. Each casting unit will be semi-continuous, direct chill type, at least twin strand with possible potential for three strand expansion, capable of casting two ingots 5" x 32" x 23' simultaneously. The alloys will be 1. Gilding Metal (95% Cu - 5% Zn) 2. Cupro-nickel (75% Cu - 25% Ni) or 3. German Silver (70% Cu - 18% Zn - 12% Ni). Each such unit should have the capacity to produce two such ingots comfortably in a one hour forty-five minute cycle. The overall casting rate for both units should be 13.8 tons/hr for a three shift operation. Our present thinking is that the casting machines will be enclosed in sealed chambers below ground level, and ingots will be removed by overhead crane.

3. Ingots will be deposited on an Easy-Down type of unit, transported by power conveyor to an in-line cropping saw, then to an in-line scale, then to storage or further processing.

Sincerely,


(Mrs.) Betty Higby
Superintendent

February 4, 1972

E. W. Bliss Company
530 S. Ellsworth
Salem, Ohio 44460

Attention: Gordon Shasteen

Gentlemen:

Congress has authorized construction of a new coin minting facility at Denver, Colorado. The new facility is scheduled to be operating in about six years. It is to be equipped with the latest proved metal processing devices.

The Bureau of the Mint office in Washington, D. C. has delegated responsibility to the Coining Division of the Denver Mint to gather preliminary technical and cost estimates. At present, we need estimates on equipment space, lump sum cost of each on installed rolling equipment, auxiliaries, and power requirements. We would appreciate your recommendations and estimates.

Our tentative plans are to equip the plant with:

1. Semi-Continuous Casting Equipment

Ingot Size: 5" x 32" x 23'
Alloy: Bronze - 95% Cu, 5% Zn
Cupro-Nickel - 75% Cu, 25% Ni
German Silver - 70% Cu, 18% Zn, 12% Ni
Rate: 13.8 tons/hr in three shifts

2. Breakdown Mill, Conveyor, Spray Chamber, Cropper, Coiler, Coolant Filter System

Type: Two (2) High Reversing Hot Mill
Reduction: 5" to .400"
Speed: Variable
Rate: 41.4 tons/hr in one shift, 5.5 slabs/hr

3. Milling Machine to descale strip on all sides, Flattener, Uncoiler, Coiler

Type: Rotating blades
Scrap Removal: Pneumatic
Reduction: .400" to .350"

4. Intermediate Mill

Two Stand Four High Tandem or one Four High Mill, payoff
reel, coiler, tension reels, run-around conveyor

Control: X-Ray

Speed: Variable

Rate: 21 tons of strip per hour

5. Finish Mill

Type: Four High Reversing Mill, (2) tension reels

Speed: Variable

Reduction: to .039"

Rate: 21 tons of strip per hour

(2) X-Ray

6. Slitter and Edger, (2) reel, flattener

Sincerely,

(Mrs.) Betty Higby
Superintendent

REL:nfw

February 4, 1972

Mesta Machine Company
P. O. Box 1455
Pittsburgh, Pennsylvania 15230

Gentlemen:

Congress has authorized construction of a new coin minting facility at Denver, Colorado. The new facility is scheduled to be operating in about six years. It is to be equipped with the latest proved metal processing devices.

The Bureau of the Mint office in Washington, D. C. has delegated responsibility to the Coining Division of the Denver Mint to gather preliminary technical and cost estimates. At present, we need estimates on equipment space, lump sum cost of each on installed rolling equipment, auxiliaries, and power requirements. We would appreciate your recommendations and estimates.

Our tentative plans are to equip the plant with:

1. Semi-Continuous Casting Equipment

Ingot Size:	5" x 32" x 23'
Alloy:	Bronze - 95% Cu, 5% Zn Cupro-Nickel - 75% Cu, 25% Ni German Silver - 70% Cu, 18% Zn, 12% Ni
Rate:	13.8 tons/hr in three shifts

2. Breakdown Mill, Conveyor, Spray Chamber, Cropper, Coiler, Coolant Filter System

Type:	Two (2) High Reversing Hot Mill
Reduction:	5" to .400"
Speed:	Variable
Rate:	41.4 tons/hr in one shift, 5.5 slabs/hr

3. Milling Machine to descale strip on all sides, Flattener, Uncoiler, Coiler

Type:	Rotating blades
Scrap Removal:	Pneumatic
Reduction:	.400" to .350"

4. Intermediate Mill

Two Stand Four High Tandem or one Four High Mill, payoff
reel, coiler, tension reels, run-around conveyor

Control: X-Ray

Speed: Variable

Rate: 21 tons of strip per hour

5. Finish Mill

Type: Four High Reversing Mill, (2) tension reels

Speed: Variable

Reduction: to .039"

Rate: 21 tons of strip per hour

(2) X-Ray

6. Slitter and Edger, (2) reel, flattener

Sincerely,

(Mrs.) Betty Higby
Superintendent

REL:nfw

February 4, 1972

United Engineering & Foundry Company
948 Duquesne Boulevard
Pittsburgh, Pennsylvania 15230

Gentlemen:

Congress has authorized construction of a new coin minting facility at Denver, Colorado. The new facility is scheduled to be operating in about six years. It is to be equipped with the latest proved metal processing devices.

The Bureau of the Mint office in Washington, D. C. has delegated responsibility to the Coining Division of the Denver Mint to gather preliminary technical and cost estimates. At present, we need estimates on equipment space, lump sum cost of each on installed rolling equipment, auxiliaries, and power requirements. We would appreciate your recommendations and estimates.

Our tentative plans are to equip the plant with:

1. Semi-Continuous Casting Equipment

Ingot Size:	5" x 32" x 23'
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3. Milling Machine to descale strip on all sides, Flattener, Uncoiler, Coiler

Type:	Rotating blades
Scrap Removal:	Pneumatic
Reduction:	.400" to .350"

4. Intermediate Mill

Two Stand Four High Tandem or One Four High Mill, payoff reel, coiler, tension reels, run-around conveyor

Control: X-Ray

Speed: Variable

Rate: 21 tons of strip per hour

5. Finish Mill

Type: Four High Reversing Mill, (2) tension reels

Speed: Variable

Reduction: to .039"

Rate: 21 tons of strip per hour

(2) X-Ray

6. Slitter and Edger, (2) reel, flattener

Sincerely,

(Mrs.) Betty Higby
Superintendent

REL:nfw

Equipment Criteria Installation

Furnace Information File

Meeting with Inductotherm on Thursday, March 9, 1972

Mr. Sharpless opened our discussion with a slide presentation illustrating the differences between the various types of induction furnaces their company builds and mentioned the possible applications and advantages of each type for specific assignments.

Most of the meeting was spent trying to give them as complete a picture as possible of what our production parameters for the new mint will be so that their engineering staff might be able to work with us in the future regarding their product recommendations.

Several interesting topics were discussed, some of which are mentioned below:

Refractories: Their feelings were that our lining life in general should be better than we had initially thought. One year or better for bronze, and perhaps same or close for CuNi. Recommend a castable refractory for inductor units over ramming.

Cooling: Above 1000 KW, air alone is not adequate. Sharpless recommends a combination of both air and water for backup safety purposes, but for ecological reasons, we should strongly consider water cooling because of the noise factor.

Furnace Types: Sharpless felt we should not overlook coreless type completely. Has some advantages over core type, i.e., faster melting if 180 cycles, flexibility of alloy change but slightly greater power costs. Perhaps easier to reline but not as good liner life as core type.

Start-up Problems: 600-1000 KW channel furnaces require approximately 1300 lbs. molten metal for start-up. This will be of special concern to us. If frozen, however, gradual application of power will allow full charge to melt.

The Inductotherm Company can and is building into their melting furnaces exhaust systems to control the smoke and fumes.

Holding Furnace: Sharpless felt we could cast 30,000 lbs. from 40,000 capacity furnace with no trouble.

Power Requirements: Sharpless felt 600 KW would give 2½ ton/hr. melt rate for melting furnaces, but some discussion followed indicating our feeling for a need for slight over-design to maintain constant production.

Standby power would be needed for failures. Sharpless thought 1300-1500 KW unit would supply basic requirements to keep charges molten. Provide for cooling water power and means to empty furnaces.

Preheat Furnaces and Furnaces General: Inductotherm has had little experience with such for large ingots. Could provide though. Brown-Borari has no experience in core type, basically in 60 cycle coreless. Asea furnaces have given General Motors real trouble.

2/1/72

AJAX ONE SLAB INDUCTION PREHEAT FURNACE, ESTIMATED DATA

Power: 10,000 - 11,000 KW

Rate: 15,000# slab (32" x 5" x 24') every 10 minutes to 970°C for 713 material
870°C for 210 material

Clearance: 2"

Floor Space: 28'x 30' (Furnace and Electrics)

Elect. Cost/8 hr day: \$ 14,040/22 days=\$ 640 (possibly 40% less)

Elect. Cost/hr: \$ 640/8= \$ 80 (possibly 40% less)

Elect. Cost/slab: \$ 80 /6= \$13.30 (possibly 40% less)

Equip. Cost: \$ 500,000

2/2/72

Mr. Korey of McLouth Steel Corporation recommends the use of the induction preheat furnace for our application. They are heating 12" x 36" x 26' slabs with excellent results. The heat sensor is retractable and clearance between slab and furnace is $1\frac{1}{2}$ " on all sides.

He would be happy to arrange any visits if we are interested in visiting their plant in Detroit.

15,000 = $7\frac{1}{2}$ tons

November 6, 1970

Inductotherm Corporation
12 Indel Avenue
Rancocas, N. J. 08073

Gentlemen:

We are interested in the latest and best method of melting and casting copper and copper-nickel alloys at the rate of ten tons per hour. We are thinking of perhaps three units for this operation, and a fourth unit for stand by.

Actually, we are only interested in receiving literature, and suggest specifications on all of the various types of furnaces, loading arrangements, and casting methods that might fall in the above range.

Please send to:

Superintendent
United States Mint
Denver, Colorado 80204

Attention: William Darlington
Superintendent, Melting Division

Sincerely,

(Mrs.) Betty Higby
Superintendent

HF:aw

Copy to: H. Frost

November 6, 1970

Ajax-Magnethermic Corporation
Overland at Larchmont
Warren, Ohio

Gentlemen:

We are interested in the latest and best method of melting and casting copper and copper-nickel alloys at the rate of ten tons per hour. We are thinking of perhaps three units for this operation, and a fourth unit for stand by.

Actually, we are only interested in receiving literature, and suggest specifications on all of the various types of furnaces, loading arrangements, and casting methods that might fall in the above range.

Please send to:

Superintendent
United States Mint
Denver, Colorado 80204

Attention: William Darlington
Superintendent, Melting Division

Sincerely,

(Mrs.) Betty Higby
Superintendent

HF:aw

Copy to: H. Frost

November 6, 1970

Brown Boveri Corporation
1460 Livingston Avenue
Department M-TR
North Brunswick, N. J. 08902

Gentlemen:

We are interested in the latest and best method of melting and casting copper and copper-nickel alloys at the rate of ten tons per hour. We are thinking of perhaps three units for this operation, and a fourth unit for stand by.

Actually, we are only interested in receiving literature, and suggest specifications on all of the various types of furnaces, loading arrangements, and casting methods that might fall in the above range.

Please send to:

Superintendent
United States Mint
Denver, Colorado 80204

Attention: William Darlington
Superintendent, Melting Division

Sincerely,

(Mrs.) Betty Higby
Superintendent

HF:aw

Copy to: H. Frost

Return to

W. Sumners

Coining *WHR*
Melting *WHD*
Frost.

SUMMARY OF ARTICLES ON SCOVILL MANUFACTURING COMPANY

COLD ROLLING OF CONTINUOUS CAST BRONZE INGOTS WITH $2\frac{1}{2}$ " x $28\frac{1}{2}$ " CROSS SECTION
(PLANT CAPACITY APPROXIMATELY 35,000 #/HR)

MELTING:

- (3) Induction Furnaces
Power: 1,000 KW, 575v, 60c, 3 ph
Rate: 10,000#/hr (5 ton/hr)

- (1) Induction Holding Furnace
Power: 120 KW
Capacity: 9,000 #
Rate: 30,000 #/hr

Comment: Intermixing of charges from (3) furnaces gives additional uniformity of composition to the casting.

- (1) Rossi-Junghans Continuous Casting Machine, 10' long ingots

- (1) Saw
Average Ingot: $2\frac{1}{2}$ " x 24" x 10', 2,000 #
 $28\frac{1}{2}$ " max.

ROLLING:

- (1) Two High Farrel-Birmingham Cold Mill, 30 x 36
Power: 2,000 HP, 360/720 RPM.
- (1) Continuous Slab Furnace (Convertible to Propane or Oil)
Capacity: 36,700 #/hr Slabs
32,500 #/hr Coils
- (1) Top Milling Machine .
- (1) Bottom Milling Machine
- (1) Four High United Engineering Rundown Mill, 16 & 34 x 34
Power: 1250 HP, 100 KW, 600v, dc generator
Feed: 0-400, 1,000 FPM
Capacity: $28\frac{1}{2}$ " x $3\frac{3}{8}$ " x 68' to .050"
- (1) Four High United Engineering Finish Mill, 16 & 34 x 34
Power: 1250 HP, 100 KW, 600 v dc generator
Feed: 0-400, 1,000 FPM
- (3) Slitter

Scovill's Continuous Brass Mill

—the world's most modern mill

The entire Scovill organization is proud of its new continuous strip mill and the product it makes. The mill, built at a cost of more than \$10 million, has many unique features and is the most modern and completely integrated brass cold rolling operation in the world. Its preliminary operation is the casting of brass bars in a continuous flat metal casting machine, the processing of which stems from research and experiment by us, and is an important advance in brass mill technique. From bars so made, these great new mills and handling devices produce sheet and strip brass of a quality and uniformity and economy of use for manufacturing not heretofore available.

Statement by Mr. Sperry at opening of new mill.



L. P. SPERRY, President,
Scovill Mfg. Co., Waterbury, Conn.

CULMINATING some 150 years of brass making in the Naugatuck Valley, Scovill Manufacturing Co. has put into operation at its Waterbury plant what is probably the world's most modern continuous brass strip mill.

This new mill, which establishes a number of new landmarks in brass processing technology, processes the heaviest cold rolled nonwelded brass coils in commercial use in the brass industry. Built at a cost of more than \$10 million, operations of the mill are geared to take full advantage

of the operating characteristics of a flat metal continuous casting unit which turns out slabs of consistently uniform structure and analysis weighing in excess of 2000 lb per slab. This is the only flat metal continuous casting machine operating in the brass industry today.

Development of the mill is the result of an effort to achieve a three-point goal—to improve the competitive position of the company; to produce a better product, and to improve working conditions.

Stone & Webster Engineering Corp. was

given the task of laying out a plant to fulfill these aims, and which would incorporate the most modern engineering ideas and equipment available. The result of this effort is the new Waterbury unit, a mill laid out for straight flow processing with a minimum of manual handling, yet possessing sufficient flexibility to permit adjustment of operations, without sacrifice of efficiency, to the variety of products turned out by the brass industry.

The mill is an integrated operation, containing all the necessary equipment in a single plant for processing cold rolled brass, from the continuously cast slabs to the final packaged finished mill product.

Modern Handling Methods

While the new plant, which was built by Turner Construction Co., incorporates several pieces of equipment not normally found in a brass mill, the aspect of the operation that first catches a visitor's eye is the ideal working conditions and the manner in which modern handling techniques have been engineered into the processing to virtually eliminate all arduous manual labor. This equipment, plus a high degree of automaticity in all processing steps, are playing vital roles in minimizing mechanical damage to stock in process and in permitting application of more exacting quality control to all steps of the operation. Highlights of the mechanical handling equipment found in this plant are described and illustrated on the reverse side of the insert on the facing page.

From the melting of the metal in the biggest furnaces in the brass industry, through the continuous casting operation, the Sundstrand corner miller and into the breakdown mill, the latter being the largest ever built for the brass industry, electrical controls are used intensively on all operations, with full automaticity utilized wherever feasible.

The flow chart on the facing insert illustrates how equipment is arranged and tied together with handling equipment in a manner to give a high degree of flexibility with underlying straight flow processing.

Descriptions and illustrations of the melting furnaces, the continuous slab casting machine, the rolling mills, the annealing furnaces, the slitting lines and the spray pickling units are given in the pages following the insert.

Among the advantages which Scovill engineers prophesy for this new mill is the ability to produce the heaviest continuous nonwelded

coils in the brass industry with unusual uniformity of chemical composition, temper and gage. They believe that annealed and cold rolled tempers and grain size can be more closely controlled than ever before. Too, edges of the strip have less camber, and crown is practically eliminated.

Heart of the new mill is Scovill's exclusive continuous flat-metal casting machine. Metal to be cast is melted in three electric induction furnaces, each with a capacity of 10,000 lb per hr. These furnaces are the largest in the brass industry and are equipped for precision control of melting temperatures and other factors which influence the metallurgical qualities of the brass.

At staggered 30-min. intervals, each of the three furnaces discharges into a holding furnace of 9000 lb capacity. This furnace is mounted over the casting machine and provides a continuous flow of molten brass to the machine. The intermixing of the charges from the three furnaces gives additional uniformity of composition to the casting as the metal descends through the water-cooled mold.

The casting machine itself is of giant size and has a capacity of several million pounds a week. It is the only one of its kind in America, designed to produce flat bars for cold-rolling into brass strip and sheet. As the brass emerges from the machine, it is automatically sawed into bars of uniform length, each one weighing in excess of 2000 lb. The conventional operation of shearing or sawing gates from individually cast bars has thus been eliminated, and internally sound metal is assured.

Mill Features Automaticity

Pushbutton control characterizes the heavy equipment, and automaticity is introduced wherever possible. On the cold-rolling mills, for example, spacing between the working rolls is kept constantly uniform by photoelectric controls which compensate for varying temperatures and roll expansion which takes place as rolling progresses. Vacuum cup and roller conveyor handling equipment do away with laborious manual handling usually associated with brass mill work.

Annealing and cleaning equipment incorporates the most modern devices for producing closely controlled annealed tempers and clean, smooth surfaces. The final annealing furnace and cleaning unit are coupled so that as the strip or sheet emerges from the furnace it is automatically positioned and travels at a controlled speed through the cleaning unit.

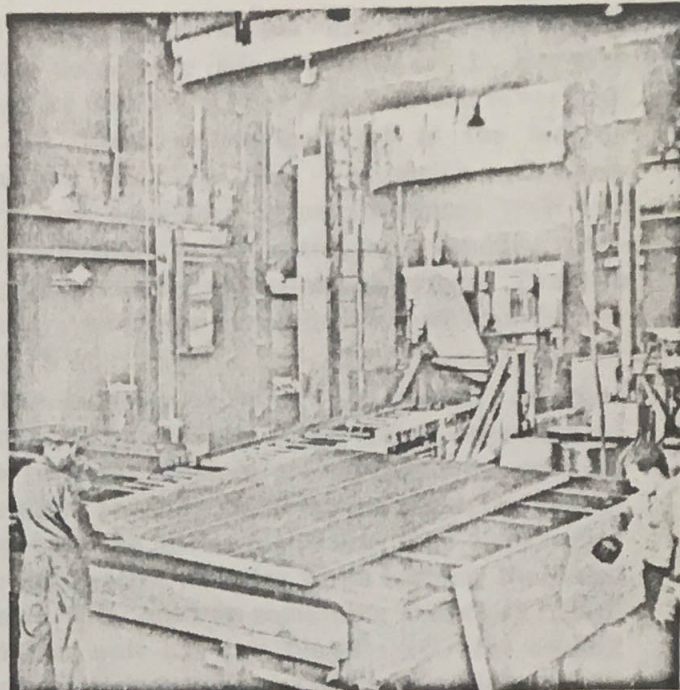
FLAT BAR CONTINUOUS CASTING

HEART of the new Scovill mill is the flat metal continuous casting machine shown in the accompanying illustrations. This Scovill-modified Rossi-Junghans unit is the only continuous slab casting unit operating in the brass industry. Producing several million pounds a month, this unit feeds slabs weighing in excess of 200 lb each to the rolling mill. Size of slabs vary with the product to be rolled, but an average size is 2½ in. thick, 24 in. wide and 10 ft long. Maximum width that can be cast is 28½ in. Scovill also operates another Rossi unit producing rounds only.

Hot metal for the casting unit comes from the melting furnace via 5000 lb ladles. This is charged into the 9000 lb holding furnace at the head of the casting machine. Temperature is maintained in this latter furnace by a built-in Ajax 120 kw induction unit.

The furnace is equipped with opposed sets of spouts, each set consisting of a pouring down spout, a receiving funnel and an emergency dump spout. The entire furnace is built on a tilting turntable which permits alternating in the use of the spouts for repairs and maintenance.

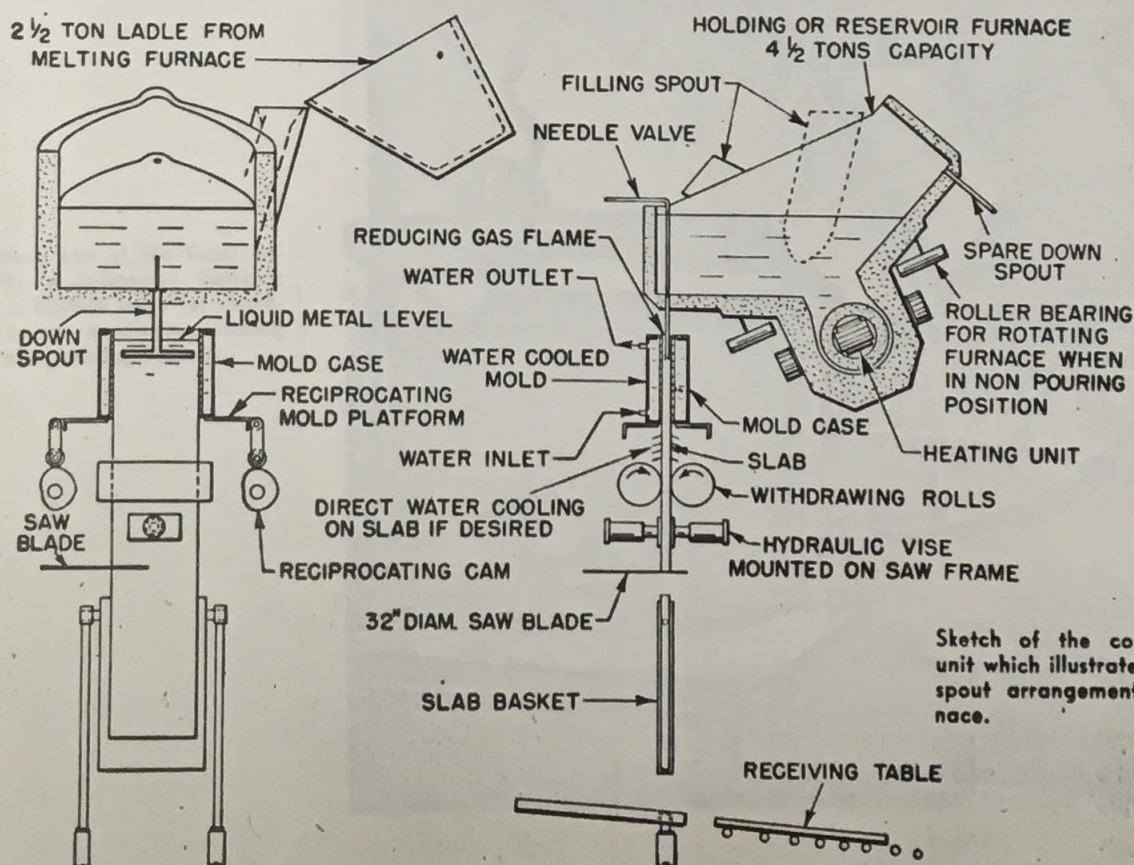
The mold is of copper construction, water-cooled, and reciprocates up and down, the down-



View of the bottom, or discharge point, of the continuous casting machine showing the basket about to lay a slab on the roller table for inspection prior to rolling.

stroke being synchronized with the discharge rate of the bar. The solidified slab is drawn from the mold at a constant speed by a set of withdrawing rolls synchronized with the descent of the mold.

A horizontally mounted saw is hydraulically clamped to the slab during the cutting period, allowing the entire saw assembly to move downward at slab speed. A basket catches the slab after cutting and deposits it on the roller tables visible in the accompanying illustration. Testing and inspection follows, and the slab is then ready for rolling.



Sketch of the continuous slab casting unit which illustrates particularly the twin spout arrangement of the holding furnace.

MELTING FURNACES

OUTSTANDING among the innovations at the new Scovill mill are the 5-ton per hr induction melting furnaces, shown in the accompanying illustrations, which feed hot metal to the continuous casting machine. These Ajax-Scomet furnaces, of which two are already installed and another under way, are the largest used for melting brass.

These furnaces, built by Ajax Engineering Corp., under Scomet license, are of the drum type, with a rated capacity of 1000 kw each. Power supply is 575 v, 60 cycle three-phase, with all phases balanced. Each furnace has a melting capacity of about 10,000 lb per hr, presently being discharged in 5000 lb lots at staggered 30-min intervals. Precision control of melting temperatures is automatic, with permanently inserted thermocouples and high-low change of power.

Construction of the furnace, shown in the accompanying sketch, consists of an octagonal steel drum (A) provided with a refractory lining

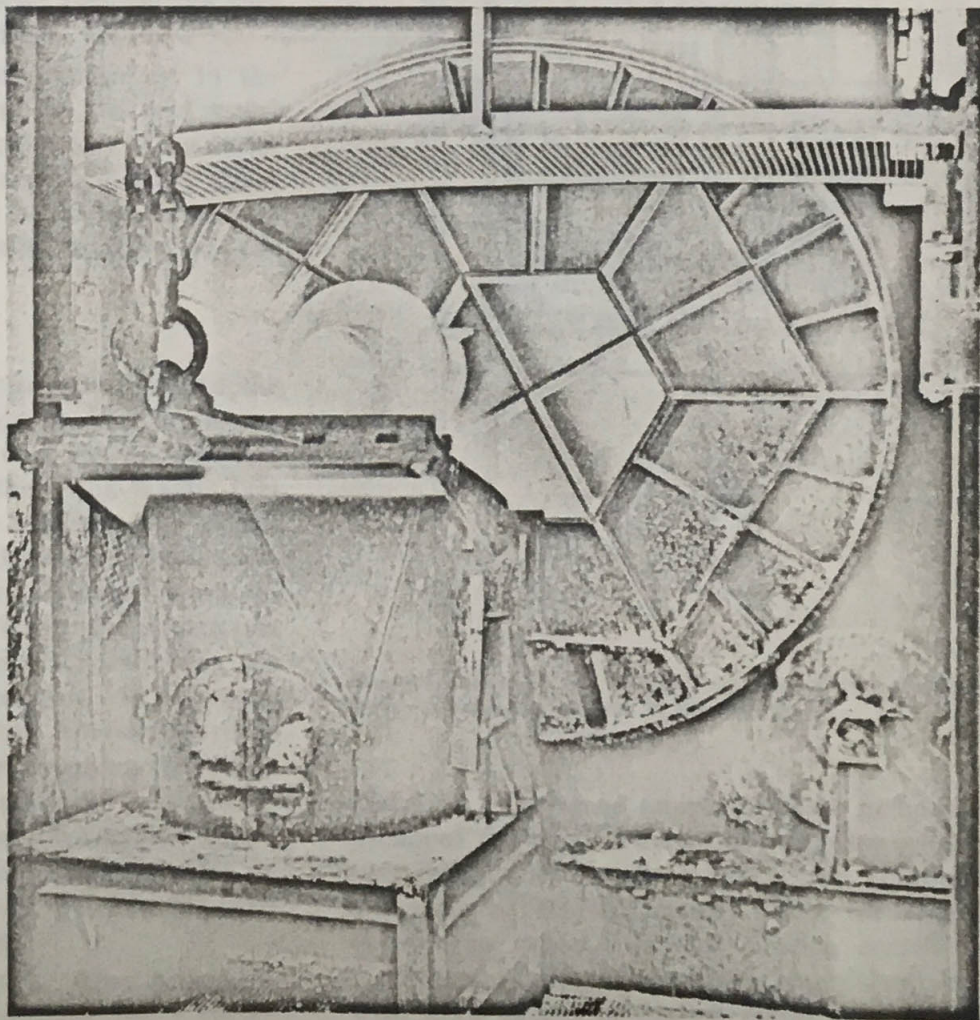
(B) of prefired shapes and standard bricks. Three detachable inductor units (C, D, E), each rated at 333 kw, are attached to the lower side of the drum, generating heat in the melting channels (F, G, H, K). The melting channels form two secondary loops, interlaced with two primary coils (L, M), acting as secondary winding of a short-circuited transformer. The two primary windings surround a closed transformer coil (N).

The inductor units can be readily detached and replaced without interrupting operation of the furnace. This is accomplished by rotating the drum to bring the inductor requiring changing above the molten metal line, thus discharging the inoperative inductor while keeping the metal heated with the two remaining inductors. Each inductor unit has two blowers (O) for cooling the transformer core and primary windings.

A motor-driven speed reducer (P) and two chains (Q) are used for rotating the drum, which turns on the two tires (R) supported by pinions (S). The drum may be rotated in all directions so that either of the three inductors can be emptied for replacement. The rotating mechanism is also used to discharge metal from the drum over the pouring spout (T).

Efficiency of the furnaces, according to pres-

Tapping one of the 5-ton capacity Ajax-Scomet furnaces into a 5000-lb ladle for charging to the continuous casting machine holding furnace.



ent experience at Scovill, is higher than that obtained with any other type, due to the great amount of power concentrated in a relatively small space. Metal holding capacity of the furnace has been reduced as much as possible to facilitate rapid change of alloys, a considerable factor in brass mill operation.

Molten metal from the furnace is transferred to the Rossi-Junghans continuous casting machine in 5000-lb capacity ladles. When the proposed three furnaces have been installed, they will be capable of supplying about 30,000 lb of metal per hour to the continuous casting machine.

Vibrating Hopper Feed

A particular advantage of this furnace is the ease of operation. Charging is accomplished with a variable speed vibrating hopper, which permits dumping of large amounts of virgin metals and scrap of all kinds into the furnace. This arrangement makes for closer control of uniformity and composition in the metal, and the two furnaces may be operated by only two men.

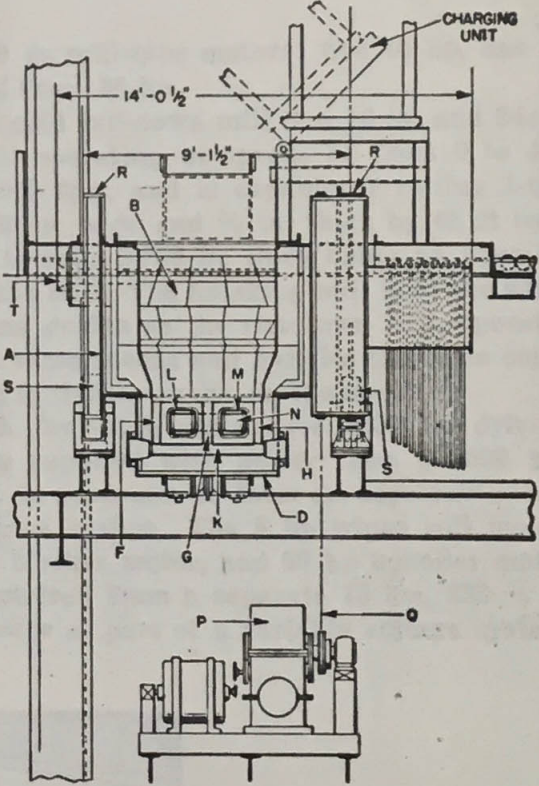
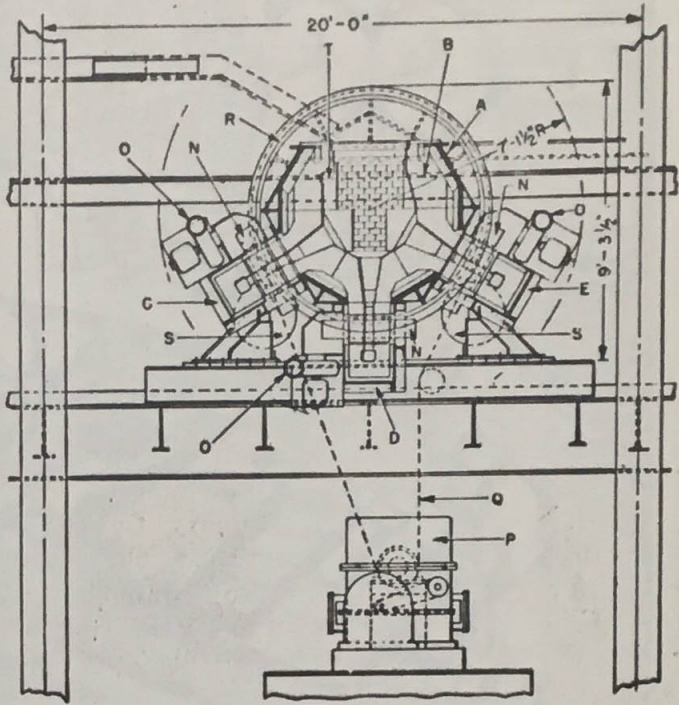
The automatic temperature control not only assures uniformity of temperature, but also eliminates the necessity for manually switching the furnace power on and off. Although the furnace is provided with a high power rate, a change of alloys is not difficult because the furnace can be completely emptied.

The large amount of metal contained in the drum facilitates fast melting as the cold metal is charged into the furnace through the large opening at the top. Because the melting channels are straight, they can be easily cleaned at regular intervals to prevent clogging of the melting circuit.

Furnace Development

Development of these units goes back to the early days of electric furnaces for melting brass, when Scovill experimented with the Bennett and Hering furnaces. When the Ajax-Wyatt furnaces became available, the company was among the first to install them, and the continuous casting processes of Eldred and Hazelett were investigated at that time. When the Junghans-Rossi process came into being, Scovill was the first to install it in this country. It was soon apparent, however, that the current furnace types were not practical for supplying the large amounts of molten metal required by the continuous casting machines, so development began on new furnace types which would be able to supply the required amount of metal in the fastest, most economical manner.

This work was carried on by Ajax Engineering Corp. and Scomet Engineering Co., a corporation jointly controlled by Scovill and American



General details of the 1000-kw induction melting furnaces. Letter references are given in the text.

Metal Co. Combined efforts of these companies produced the electric induction Ajax-Scomet furnace, adaptable to melting brass, zinc, aluminum and other nonferrous metals. These furnaces of extra-large capacity assure precise control of melting and uniform chemical composition, along with high output of molten metal for the continuous casting process.

ROLLING MILLS

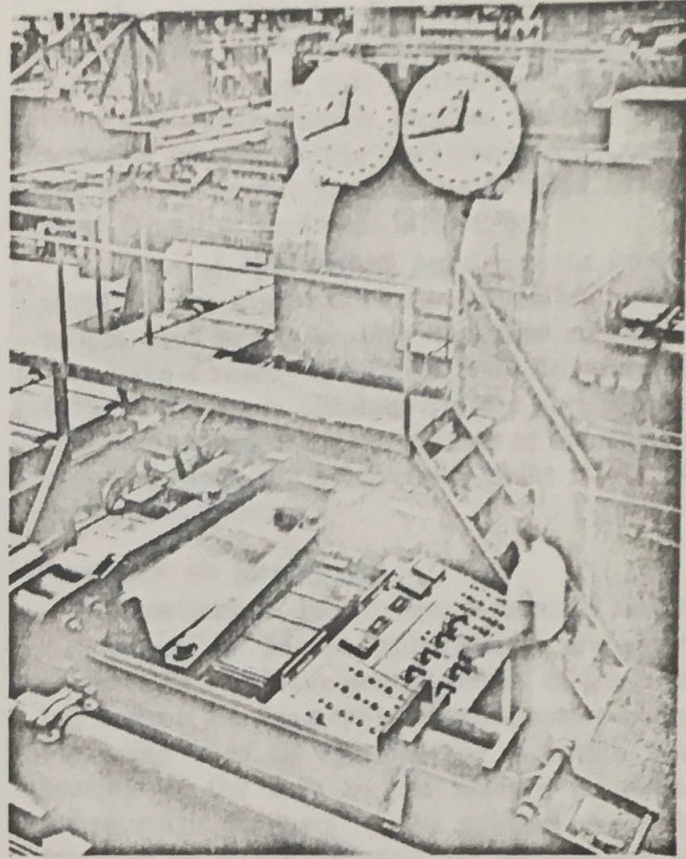
THE rolling mill equipment installed at Scovill has, at its starting end, a cold breakdown mill built by Farrel-Birmingham Co., Inc., and equipped with General Electric controls, which is the largest manufactured to date for the nonferrous industry.

Installation has also just been completed on a four-high cold run-down and four-high cold finishing mill as part of the new continuous strip line. The two mills, designed and built by United Engineering and Foundry Co., with Westinghouse controls, represent the most modern and complete cold rolling equipment as yet designed and placed in operation in the brass industry for producing quality strip and sheet.

The two-high cold breakdown mill is of conventional design, although some new features have been introduced. The frames are cast steel, mounted on cast steel stringer bedplates. The double motor screwdown is equipped with a magnetic clutch which provides for independent operation of either screw or simultaneous adjustment of both. Selsyn units on the entry control desk indicate roll opening in 0.001 in.

The two mill rolls, 30x36 in., are of forged steel, and the journals are supported in precision sleeve bearings. The top roll is hydraulically counterbalanced by means of cylinders located on the under side of the mill housings, which support the roll against the adjusting screws through lifter rods. The system includes a nitrogen-loaded accumulator maintained at predetermined pressure by a positive displacement pump.

Power is furnished by a mill type wound-rotor induction motor capable of delivering 2000 hp continuously at either 360 or 720 rpm. The mill auxiliaries (screwdown, table, and transfer drives) are all equipped with new GE

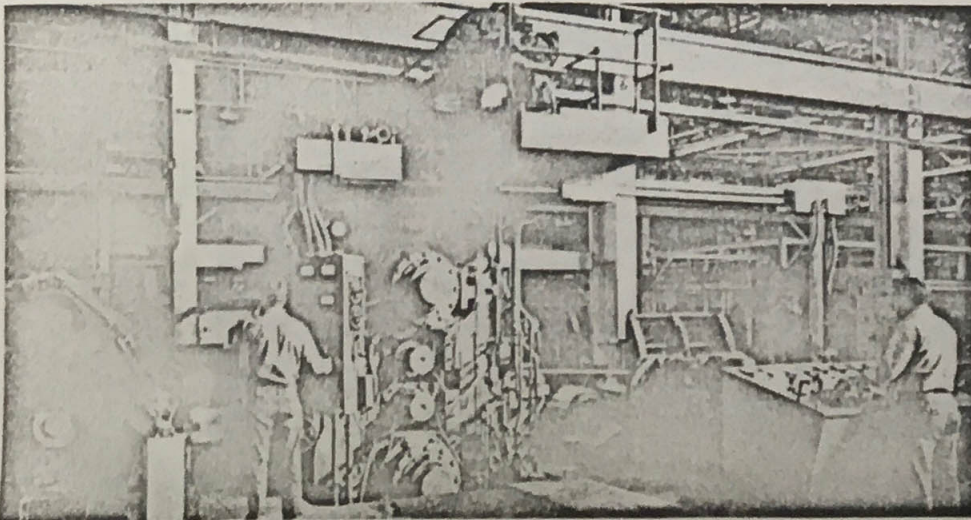


Two-high cold breakdown mill for preliminary rolling operations, which reduces the 1-ton, 2.5 in. thick bars to 0.40 in.

MD600 dc mill-type motors: five 10 hp, one 25 hp and three 35 hp.

The cold run-down mill is a 16 in. and 34x34 in. mill operating at speeds of from 0 to 400 and 1000 fpm, and is capable of rolling 1-ton bars 29 in. wide and $\frac{3}{8}$ in. thick by 68 ft long down to coils 0.050 in. thick using an upcoiler after the mill. The finishing mill is of the same size and design as the run-down mill, operates at the same speeds and handles the same coils, except in lighter gages, on the upcoiler.

Both four-high mills have 1250 hp driving motors supplied with power from a 1000 kw, 600 v, dc generator to form an adjustable voltage drive system. The 5 hp wiper roll motor, 75 hp blocker motor, and 50 hp upcoiler motor are powered from a separate 75 kw, 230 v, dc generator as part of a variable voltage system.



Four-high cold finishing mill, showing control desk at the right.

ANNEALING FURNACES

SOME of the world's largest nonferrous continuous gas annealing furnaces are installed in the new Seovill mill. Three of the four furnaces at the plant, one of which is shown in the accompanying photograph, were built by Surface Combustion Corp., and are of the direct-fired roller hearth continuous type. The fourth furnace was built by the Electric Furnace Co.

Two of the furnaces are an assembly of a heat chamber joined to a specially constructed high capacity preheater, cooling chamber and quench tank. The other two furnaces are duplicates, with the exception that they do not incorporate the preheating unit. One furnace can process either coiled sheet or bars while the other is restricted to coils.

The continuous coil furnaces are divided into two main work sections—the heating section and the cooling and quench spray section. The 100-ft heating chamber is further divided into five heat zones for flexibility of heating cycles. This permits the changing of alloys or furnace temperatures by merely leaving an empty zone between different charges.

The 92 burners in each furnace are of the low pressure, automatic proportioning, velocity type, burning propane gas. They are located in the side walls and staggered to fire above and below the work. Automatic heat-demand controls are built in and facilities for removal of burner units without furnace shutdown are also provided.

Thirteen convection fans having 36 in. diam blades and water cooled bearings are situated in the furnace chamber ceiling to assure even distribution of heated gases through the charge, especially during annealing of sheet coils. Each fan is driven by an individual 3 hp motor with separate pushbutton controls.

Adjacent to the discharge end of the furnace

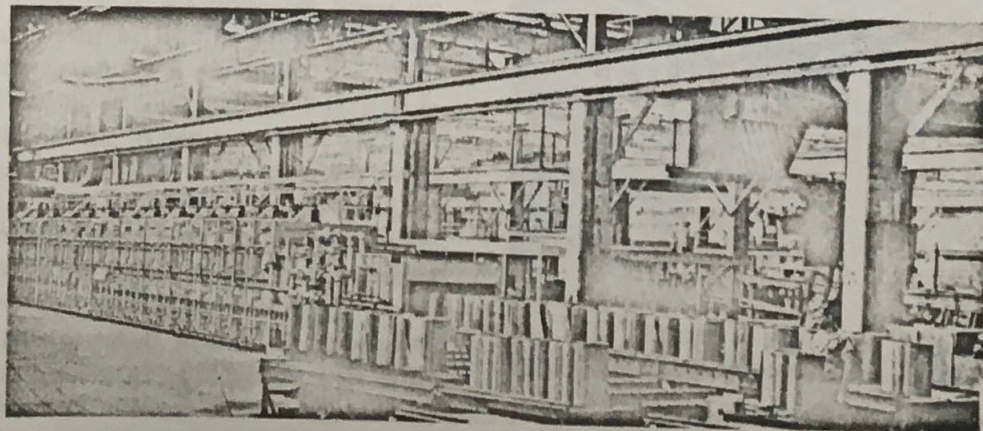
are the refractory-lined slow cool chamber and the stainless steel spray quenching chamber. The 6-ft long slow cool unit is directly connected to the 12-ft spray quench section. In the latter, water is sprayed on the work for quickly cooling the bars to permit them to be handled immediately from the discharge table.

Because of the weight requirements encountered in continuous brass annealing, power rollers used in the heating and slow cool chambers have a rated capacity of 2000 lb per roll at 1472°F. Power is obtained from a sprocket and chain arrangement on the outside of the furnace geared through a 3 hp conveyer drive motor and double transmission.

Operates on Gas or Oil

The continuous slab furnace is unusual in that it contains a flame impingement preheating chamber in which the major portion of the heating is done, the long conventional heating chamber being used to equalize and maintain final heating of the bars to the desired annealing temperature. Burners in the preheater can be operated on either propane gas or standby oil through a temperature range up to 1500°F. Power driven alloy conveyer rolls similar to those in the main heating section are used in the 14-ft long preheater.

Overall length of the furnaces is about 117 ft, exclusive of charging and discharge tables. The furnaces are designed for production capacities of 32,500 lb per hr of coiled sheet or 36,700 lb per hr of bars. Coils up to 30 in. OD and weighing 2000 lb are handled in two parallel rows, and slabs 16 or 24 in. wide of the same weight are processed in two or three parallel rows, two high. While the furnace is designed for maximum production at as high as 1500°F, and uniform annealing conditions at temperatures as low as 450°F, in production the bar stock is annealed at about 1450°F and the coiled sheet stock at 1060°F. Temperatures in the furnaces are controlled by a Ray-O-Tube zonal control system which holds temperatures from coil to coil within a range of 10°F.



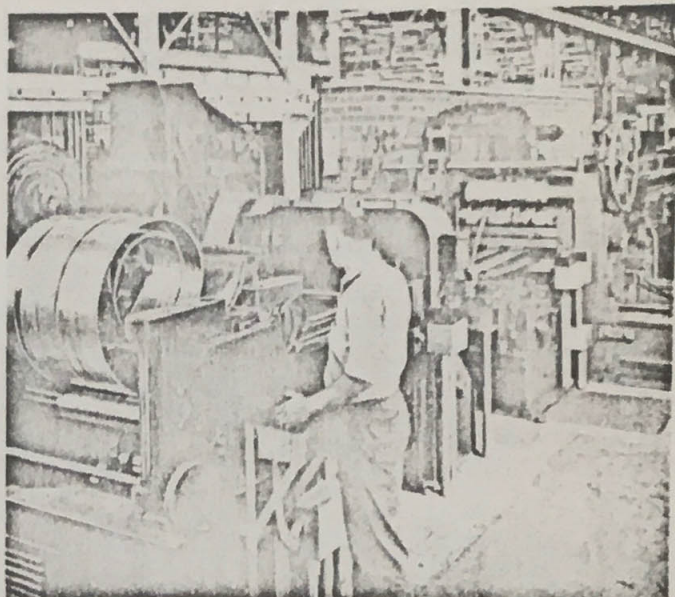
Coil and bar annealing furnace, designed to process 2000 lb coils of strip brass, two abreast. Flat bars up to 45 ft in length can also be accommodated.

SLITTING LINES

THE Scovill mill includes three complete slitting lines of, respectively, 1/32, 1/8 and 3/8 in. capacity. These units, built by Waterbury Farrel Foundry & Machine Co., are equipped with Farval centralized lubrication and centralized electrical controls.

Typical of these lines is the heavy duty line, shown in the accompanying photo, for handling 3/8 in. stock, hard or annealed, up to 30 in. wide. The first unit in this line is a coil box powered by a 5 hp gearmotor. Then follows a five-roll straightener equipped with feed rolls and driven by a 40-50 hp motor. It is fitted with a pneumatic metal wiper.

The next unit, the gang slitter, can make five cuts on 3/8 in. brass at 150 fpm and is powered by a 100-125 hp motor. The cutter spindles are equipped with 16 in. diam cutters, sleeve mounted. A rotary scrap cutter, with feed rolls, follows the slitter. It will cut 1 1/2 in. wide scrap into 2-in. lengths which are carried away by a conveyer. The shear is an upcut unit, with the cutter blade having 5/8 in. per ft shear and an upstroke on the slide of 3 1/2 in. The final unit in the line is a three-roll coiler which operates at 100 to 300 fpm. The coiler rolls are 6 in. diam by 34 in. long.



Heavy duty slitting line from the discharge end where 3/8 in. strip is slit. This unit is equipped with an upcut shear.

The medium duty slitting line may be used for either conventional slitting, in which the metal is fed through, or for pull through slitting. It will handle hard or annealed 1/8 in. brass strip. The pay-off unit has a speed range of 100 to 1000 fpm, depending on thickness of metal. Motor speed of the payoff is regulated to give a back tension to the metal as it is unwound from the drum.

An unusual feature of the light duty line, which handles 0.032 to 0.10 in. stock, is that it is hydraulically driven by Vickers' equipment.

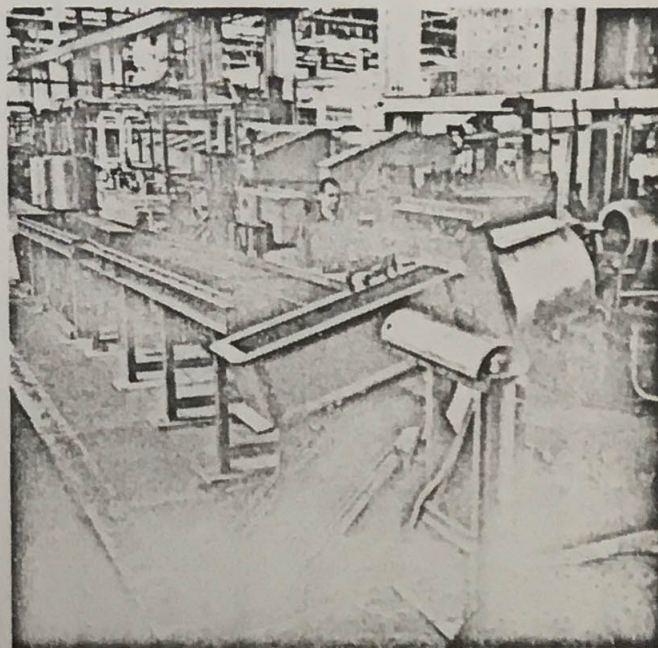
SPRAY PICKLING LINES

PICKLING operations at the new mill are handled by two spray pickling machines built by Metalwash Machinery Corp. capable of handling strip up to 30 in. wide at speeds up to 600 fpm. Each of these lines is more than 150 ft long and consists of a coil pay-off reel; feed rolls and metal flattener; a series of sulfuric acid, bichromate, cold water, hot water and soap tanks, and a hot air dryer. A winding reel for light metal and a coiler for heavier strip is installed at the discharge end of the lines.

Pickling and rinsing is all done by pressure spraying and carryover of liquids from one tank to another is prevented by a series of air pressure plows. Stitching of one coil to another is not done in these lines. When a coil of strip is fed into the line, it will have an uninterrupted run to the end. This technique is expected to result in a uniformly clean surface without over-pickling or etching in spots which occurs when strip is stopped for stitching.

These machines are the result of extensive work with an experimental unit which was built to duplicate the conditions which would be found in actual production. Particular emphasis was placed in these studies on controlling

carry-over. The production units installed at Scovill handle a greater variety of gages at higher speeds than any unit previously built by Metalwash.



One of the spray strip pickling lines can be seen here, together with supplementary coil handling equipment. This unit is capable of handling strip up to 30 in. wide at speeds up to 600 fpm.

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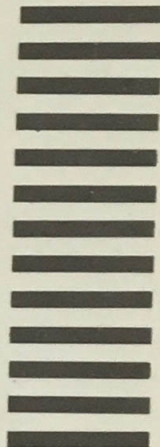
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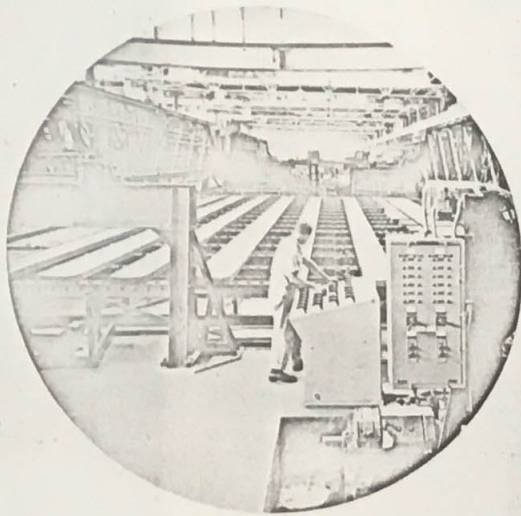
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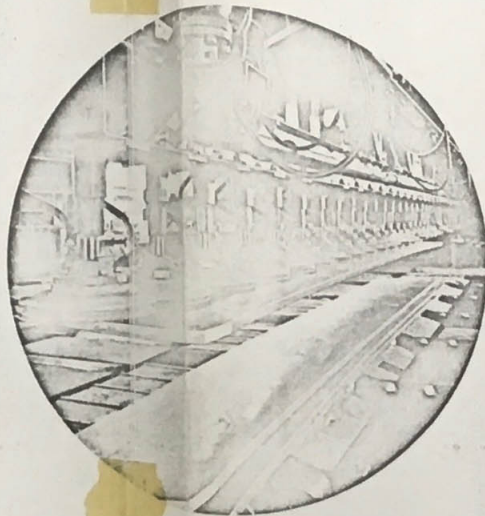
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New Scovill Brass Mill Features Latest Handling Methods

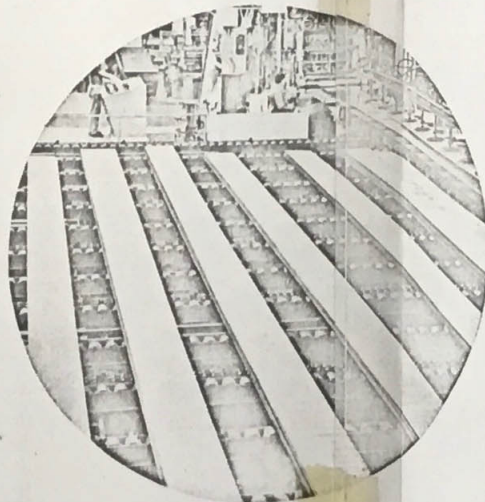
Vital factor in the design of the new mill is the modern material handling equipment which links together the processing steps (see flow sheet on reverse side) in a fast, continuous flow without sacrificing the flexibility necessary in this type of operation. Illustrated here are typical examples of the handling methods used in this mill to assure fast, efficient handling of some of the heaviest nonwelded coils used in the brass industry.



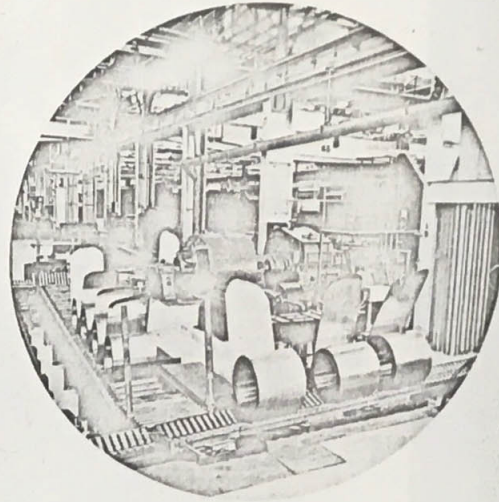
BARS STACKED ON THE STORAGE ROLLER TABLES, immediately after passing through the 2-high breakdown mill, are shown here. This table, built by Mathews Conveyor Co., is typical of several such units in the new Scovill mill, which, supplemented by vacuum lifting equipment, were designed to eliminate unnecessary manual handling, reduce mechanical defects in the bars due to dents, etc., and to provide a steady flow of material from one processing operation to the next. Visible at the right is one of the Mathews chain driven live roller tables. At the far left and far right can be seen the structures of the transfer bridges. Another example of the mechanical handling developed for this mill is in the slab milling operation. Bars up to 65 ft long are automatically positioned on live rollers, centered, and moved through the miller and onto a series of arms which mechanically turns the bars 180°. The bars are again automatically positioned and passed through the No. 2 miller, after which they are inspected on one side, mechanically turned over again and inspected on the other side.



FLAT BARS ARE HANDLED BY A VACUUM TRANSFER SYSTEM, shown here, which permits piling, unpling and moving of the variety of sizes and thicknesses which are required to give the necessary flexibility to mill operations. Built by Wean Engineering Co., this vacuum handling system consists of a series of vacuum cups mounted on a self-powered transfer bridge. This equipment is installed at the entry and delivery ends of the 2-high mill, ahead and beyond the upcut shear and the entry and exit ends of the bar annealing furnaces and at the entry end of the slab milling unit. The vacuum equipment is designed for continuous operation 24 hr a day, and each unit has capacity for lifting and moving flat bars 16 in. to 29 in. in width, weighing 2000 lb and higher. Bars handled vary from 9 to 64 ft and in thickness from 2 1/2 to 0.400 in. Each cup has a lifting and holding capacity of approx. 400 lb. The load beam in unit shown above may be arranged for longitudinal as well as lateral movement by means of hydraulic cylinders. Other vacuum lifting units also feed a 4-high mill.



VIEW OF THE BAR STORAGE TABLES feeding the entry side of the 4-high cold rolling mill. At right center is a vacuum lifting unit which picks the bars off the storage tables and positions them on the live roller table feeding the mill. The bar becomes a coil after reduction in this mill. The wide variation in specifications covering metal in the nonferrous industry does not permit synchronizing the various rolling, annealing, shearing and slab milling operations. To overcome this situation as far as possible, and to provide for economical operation and production efficiency in the new mill, Scovill adopted this system of roller conveyers connecting essentially all of the flat bar processing equipment. Conservation of floor space and the desirability of reducing to a minimum the handling time by means of overhead cranes requires the stacking of bars on the roller conveyor system. Bars are then fed into and discharged from the equipment one at a time. It is this combination of both multiple and individual handling that makes necessary the piling and unpling of the bars and the development of this equipment for handling the bars in this manner.



BEGINNING WITH THE FIRST 4-HIGH ROLLING SEQUENCE, the metal is handled in 2000 lb coils. Two separate but identical coil handling systems, built by Logan Co., service both the 4-high mills. The conveyers are designed to handle brass coils which vary from 18 to 30 in. max diam, all 16 in. ID, 16 to 29 in. wide. These mill loop conveyor systems permit handling as much as three coils per min. Special 25° troughed rolls are provided on the entry side of each mill on the troughed gravity lines which handle soft coils to prevent the coils from becoming egg shaped. On the delivery side of the mill, all troughed gravity rolls are at a 15° angle to suit the harder metal. To further decrease chances of damage, all troughed rolls are machined and have highly polished surfaces. All ends are rounded to avoid marking the coils. The general layout is arranged so that the troughed gravity rolls form two sides of the box loop system. The other sides are closed at one end by the two parallel storage aprons and at the other end by the rolling mills and process machinery. Also visible in this photo are the storage apron slat conveyers.

FARREL BUILDS LARGEST NONFERROUS COLD ROLLING MILL FOR SCOVILL MANUFACTURING COMPANY

Unique Mechanized Handling Equipment Increases Operating Efficiency

A new line of brass rolling mill equipment, installed in a new building of the Scovill Manufacturing Company, Waterbury, Connecticut, has, at its starting end, a breakdown mill built by Farrel-Birmingham. This is the largest mill known to have been manufactured for the nonferrous metals industry.

The sound and proven design of this two-high 30" x 36" giant gives promise of high operating efficiency. Full ca-

capacity production flow is assured by unique handling equipment, also engineered by Farrel-Birmingham.

HANDLING EQUIPMENT

Completely mechanized handling makes it possible for two operators to manipulate the bar on both sides of the mill and also regulate roll speed and gauge, all from two control desks, one placed on each side of the mill on opposite sides of the roller tables. The

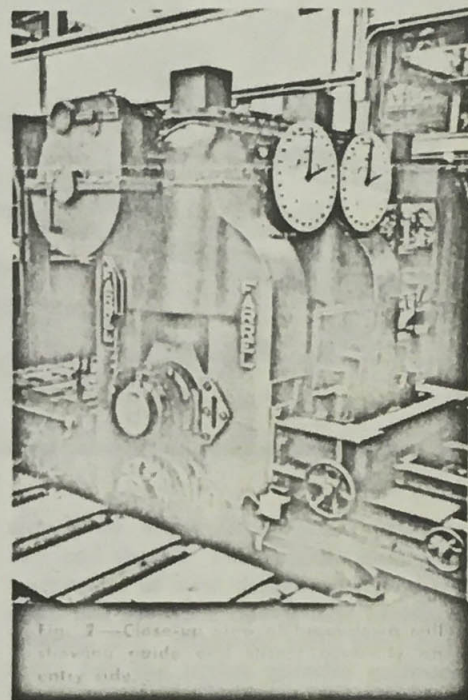


Fig. 2—Close-up view of mill showing rapid change of entry side.

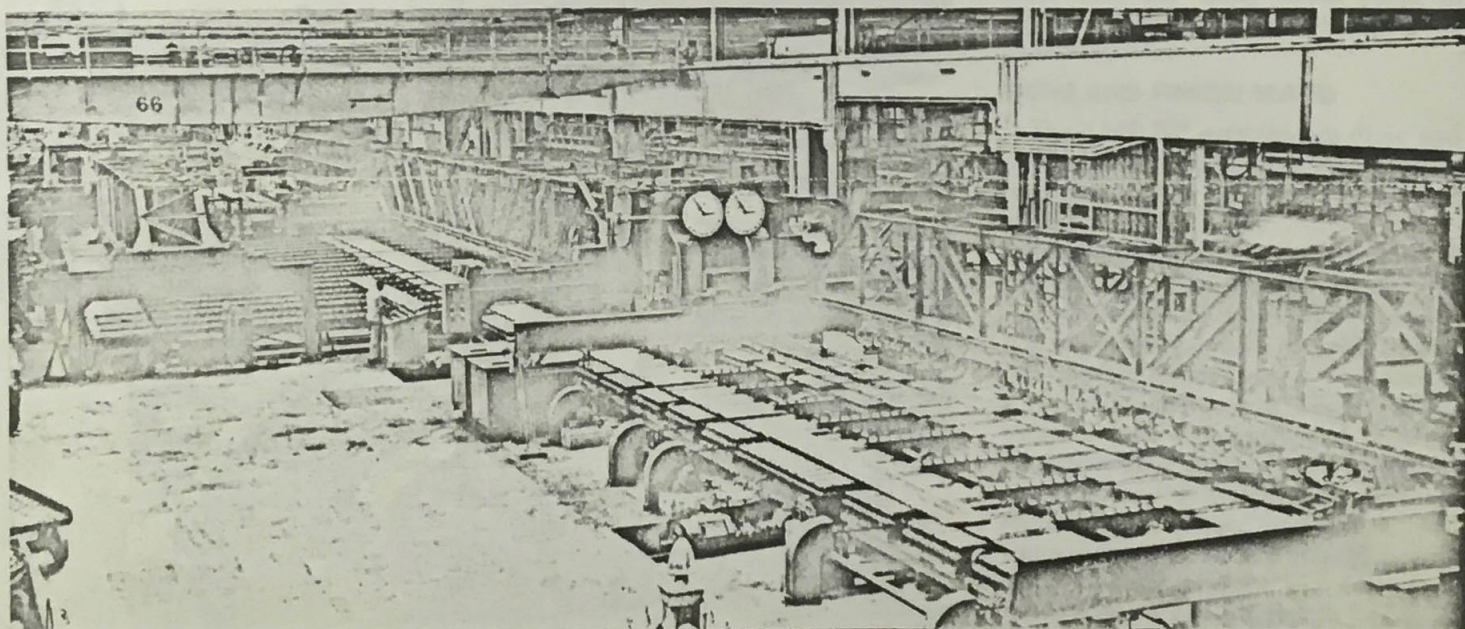


Fig. 1—All operating controls of this 30" x 36" cold brass breakdown mill and its completely mechanized handling equipment are centralized at two control desks.

Farrel-Birmingham Equipment News

The frames are cast steel, proportioned for great strength, and mounted on cast steel stringer bedplates. The double motor screwdown of the mill is equipped with a magnetic clutch which provides for the independent operation of either screw or the simultaneous adjustment of both. Two large dial indicators are mounted on the housings at the entry side for gauge readings. Each dial has two hands, one for thousandths and one for fractional divisions of the inch. In addition, Selsyn units on the entry control desk indicate roll opening in thousandths of an inch.

The two mill rolls are made of forged steel, and the journals are supported in precision sleeve bearings. The top roll is hydraulically counterbalanced by means of cylinders located on the under side of the mill housings, which support the roll against the adjusting screws by means of lifter rods. The system includes a nitrogen-loaded accumulator maintained at predetermined pressure by a positive displacement pump.

To facilitate changing of rolls, an electrically driven roll-changing rig is recessed in the floor on the side of the mill opposite the drive. In preparation for roll removal, spacers are used to support the upper roll chocks on the lower ones. The rolls, still in their

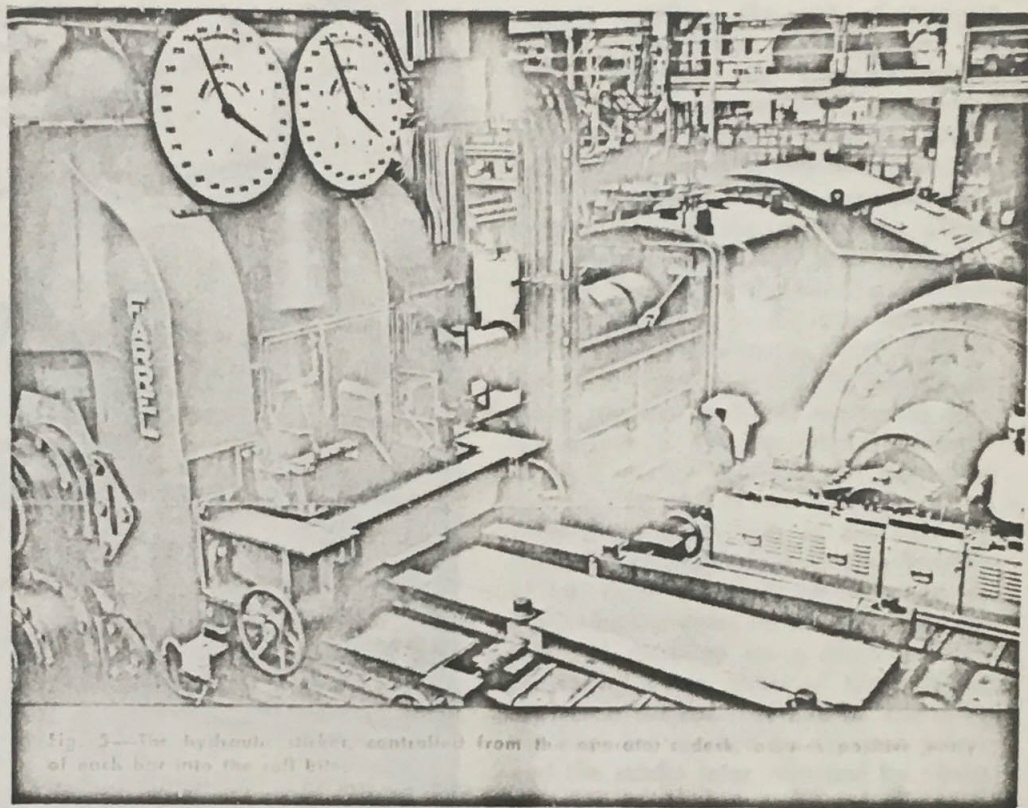


Fig. 3—The hydraulic cylinder, controlled from the operator's desk, counterbalances weight of each bar into the roll bite.

bearing boxes, are easily removed from the mill as a pair and a new set quickly installed in like manner.

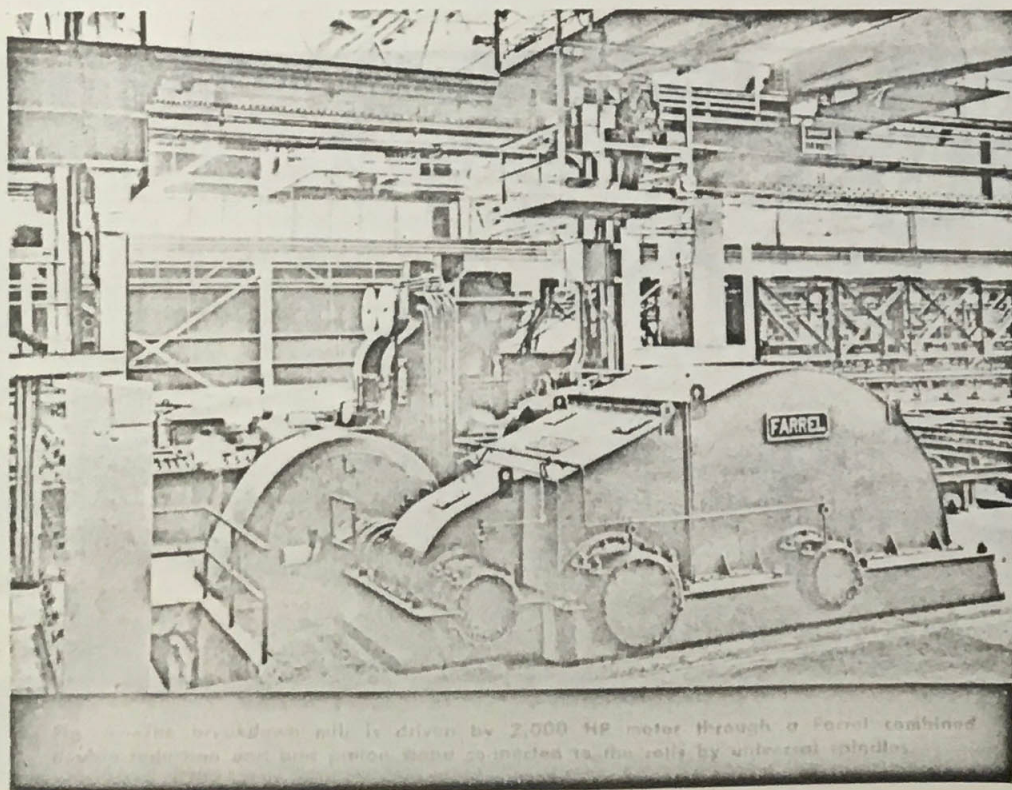
Universal spindles are used to connect the rolls to the pinion stand. These units are simply but effectively de-

signed to eliminate shock, looseness and end thrust. The spindle assembly support is of new design which abandons the use of a heavy cast housing. Instead, 21½" diameter solid steel rods serve for the upper spindle support. For horizontal alignment, two hollow steel bars are used, which pivot in brackets attached to the housing of the pinion stand.

DRIVE AND PINION STAND

The 2,000 HP combination drive and pinion stand is equipped with gearing manufactured in the Farrel gear plant at Buffalo, New York.

The first reduction gears and the mill pinions are Farrel-Sykes continuous tooth herringbone type, while the second reduction consists of split (divided) double helical gears. This makes a compact arrangement which distributes the load uniformly and requires minimum floor space. A unit-type pressure lubricating system with separate motor driven pump, provides a continuous spray of oil at the mesh line of all gears and pinions and force-feed lubrication to all antifriction bearings. The pinion stand housing is of cast Meehanite® metal and the base and cover for the drive are substantial steel weldments.



The screwdown mill is driven by 2,000 HP motor through a Farrel combined drive and pinion stand connected to the rolls by universal spindles.

Farrel-Birmingham Equipment News

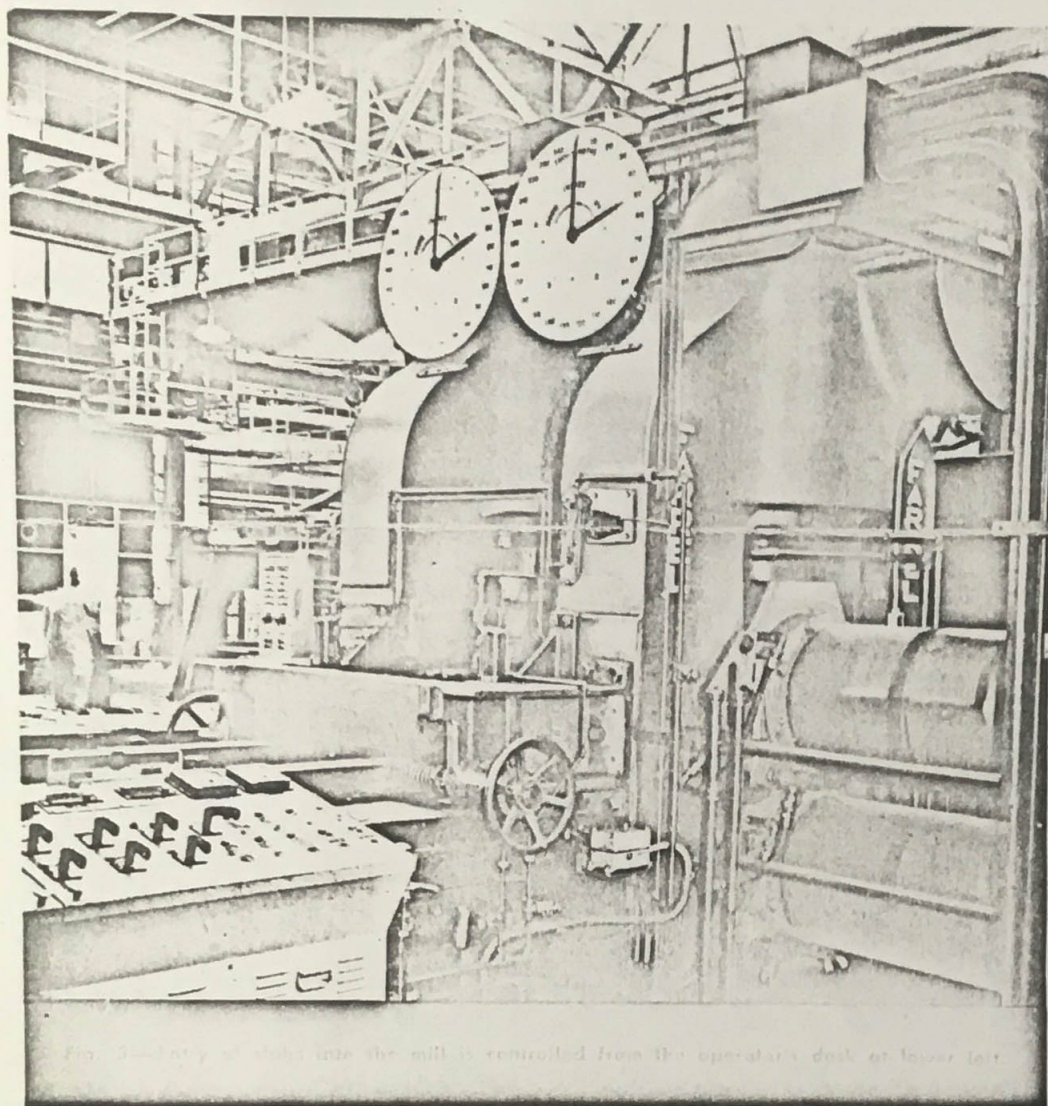


Fig. 3—Entry of slabs into the mill is controlled from the operator's desk at lower left.

system employs the use of vacuum pilers and unpilers traveling over the entry, delivery and transfer tables. These units each consist of a series of suction discs mounted on a structural supporting member, which is motivated hydraulically. By means of these suction devices the ton-weight pieces are easily moved from point to point. On the feed side, the routine processing procedure is to lift the bars from the transfer table to the entry table of the mill where a hydraulic sticker assures positive entry of each bar into the roll bite. On the delivery side a kick-off device removes the bar after the pass to one of the transfer tables located on either side of the delivery table. To accommodate varying lengths of bar there are eight of these air-operated kicker arms set on different centers, all mounted on a shaft beneath the table. From either of the transfer tables on the delivery side of the mill, the bars are stacked by vacuum pilers and the stacks later returned by chain transfer to the entry side of the mill for a succeeding pass, or delivery made to the annealing oven. Limit switches interlock the tables on both sides of the mill to prevent accident.

MILL

The mill is of conventional Farrel-Birmingham design, although some new features have been introduced.

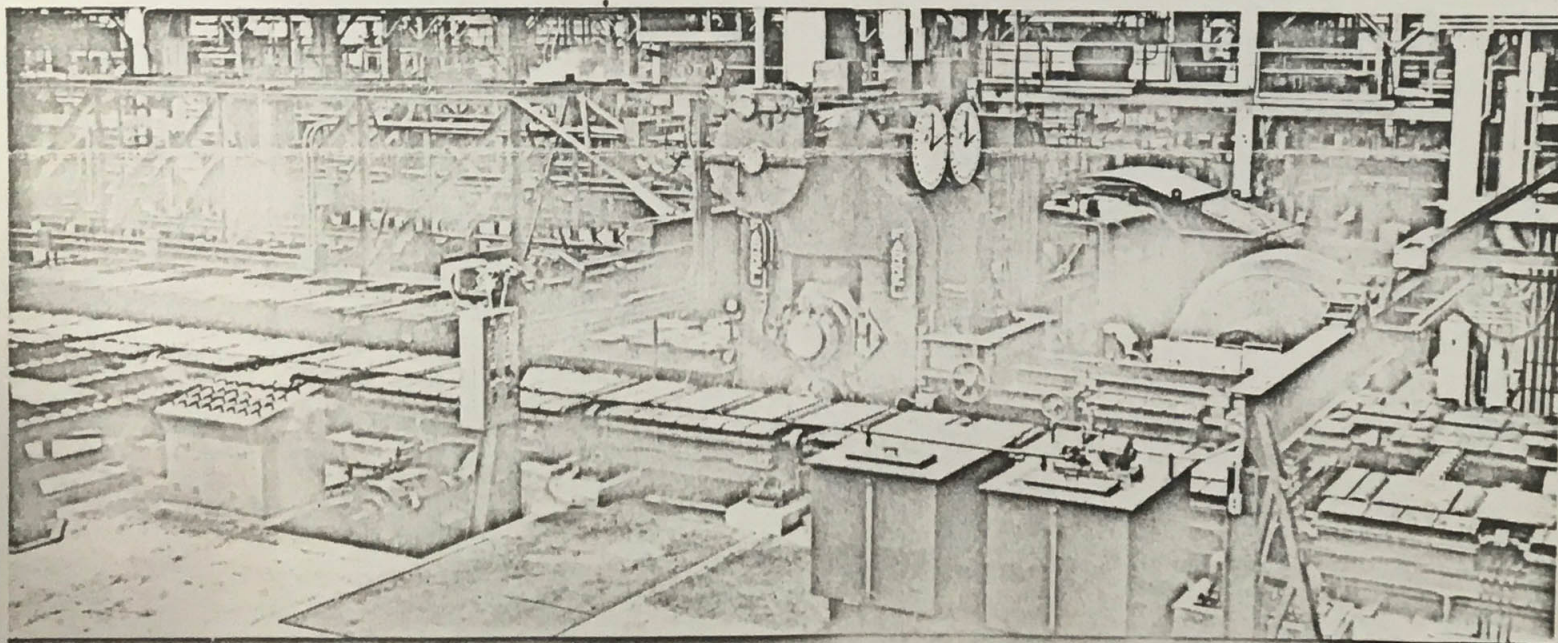


Fig. 4—General view of mill opposite drive side. Roll-changing rig is recessed under floor plate in foreground.

Furnace Information File

Federal Register Use Availability of EIS File

THE DEPARTMENT OF THE TREASURY

DATE 8-15-72

TO Mr. MacDonald

Attached is a photocopy of the Notice concerning the availability of the Draft Environmental Impact Statement for the Denver Mint, published in the Federal Register for August 15, 1972.

E. A.

cc: Mr. Rhea ✓

Elting Arnold
Special Assistant to the General Counsel
Room 2308
Ext. 8261

Notices

DEPARTMENT OF THE TREASURY

Office of the Secretary

CONSTRUCTION OF NEW U.S. MINT, DENVER, COLO.

Notice of Availability of Draft Environmental Impact Statement

Pursuant to section 102(2)(C) of the National Environmental Policy Act of 1969, the Bureau of the Mint in the Department of the Treasury has prepared a draft environmental impact statement for the location and, in general terms, the construction of a new U.S. Mint at Denver, Colo.

The proposed mint would be located on some 30 acres in the city of Denver bordered by the official Platte River alignment on the east and Highway I-25 (Valley Highway) on the west.

The Mint is being planned for a production capacity of 7.7 billion domestic coins per year and 35 million proof coins and medals per year. It would be designed to provide space for expansion of critical operations and to make possible reasonable expandability of the facility to accommodate increased production requirements as they develop in future years. Although detailed design of the facilities has not yet been started, it has been determined that building space of approximately 700,000 square feet would be needed. The structures would reflect the importance of the governmental function to be performed.

Copies of the statement are available for inspection during regular working hours at the office of the

Facilities Project Manager, Bureau of the Mint, Denver Mint, 320 West Colfax Avenue, Denver, CO,

and at the

Office of the Director, Bureau of the Mint, Room 2064, U.S. Treasury Department, 15th Street and Pennsylvania Avenue NW., Washington, DC 20220.

Copies are also available from the National Technical Information Service, U.S. Department of Commerce, Springfield, Va. 22151 for \$3.

Copies of the environmental impact statement have been sent to various Federal, State, and local agencies and citizens' groups as outlined in the guidelines of the Council on Environmental Quality. Comments are invited from any State and local agencies which are authorized to develop and enforce environmental standards and from any Federal agencies having jurisdiction by law and by special expertise with respect to any environmental impact of the proposed facility from which comments have not been requested specifically. Comments from the public are also invited.

Comments concerning the proposed action and any requests for additional information should be addressed to:

Facilities Project Manager, Bureau of the Mint, Denver Mint, 320 West Colfax Avenue, Denver, CO 80204.

Comments must be received within 30 days from the date of publication of this notice in order to be considered in the preparation of the final environmental impact statement.

[SEAL] WILLIAM L. DICKEY,
Deputy Assistant Secretary
of the Treasury.

AUGUST 10, 1972.

[FR Doc.72-12873 Filed 8-14-72;8:52 am]

DEPARTMENT OF THE INTERIOR

National Park Service

[Order No. 73, Revised, Amdt. 1]

ASSISTANT DIRECTOR, SERVICE CENTER OPERATIONS

Delegation of Authority

Sections 1 and 2 of National Park Service Order No. 73, revised, published in the FEDERAL REGISTER of March 29, 1972 (37 F.R. 6409) are hereby amended to include the Director, Harpers Ferry Center. Section 3 is amended to add the revocation of National Park Service Order No. 65 (36 F.R. 5629), as amended.

SECTION 1. *Delegation.* The Assistant Director, Service Center Operations may exercise all the authority now or hereafter vested in the Director, National Park Service in administering and operating the Denver Service Center and Harpers Ferry Center and in serving the regional offices and parks, except as to the following:

* * * * *

SEC. 2. *Redelegation.* The Assistant Director, Service Center Operations, may, in writing, redelegate to his officers and employees the authority delegated in this order, and may authorize written redelegations of such authority except that contract and procurement authority in excess of \$50,000 may only be redelegated to the Director, Denver Service Center; Chief, Contracting Office, Denver Service Center; and Director, Harpers Ferry Center. Each redelegation shall be published in the FEDERAL REGISTER.

SEC. 3. *Revocation.* * * * National Park Service Order No. 65 (36 F.R. 5629), as amended, is hereby revoked.

(205 DM as amended; 245 DM, as amended; sec. 2 of Reorganization Plan No. 3 of 1950)

Dated: August 4, 1972.

GEORGE B. HARTZOG, Jr.,
Director,
National Park Service.

[FR Doc.72-12835 Filed 8-14-72;8:48 am]

Office of the Secretary

HARLEY L. COLLINS

Statement of Changes in Financial Interests

In accordance with the requirements of section 710(b)(6) of the Defense Production Act of 1950, as amended, and Executive Order 10647 of November 28, 1955, the following changes have taken place in my financial interests during the past 6 months:

- (1) No change.
- (2) No change.
- (3) No change.
- (4) No change.

This statement is made as of July 14, 1972.

Dated: July 14, 1972.

HARLEY L. COLLINS.

[FR Doc.72-12823 Filed 8-14-72;8:46 am]

RAY F. DAVIS

Statement of Changes in Financial Interests

In accordance with the requirements of section 710(b)(6) of the Defense Production Act of 1950, as amended, and Executive Order 10647 of November 28, 1955, the following changes have taken place in my financial interests during the past 6 months:

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- (3) None.
- (4) None.

This statement is made as of July 13, 1972.

Dated: July 13, 1972.

RAY F. DAVIS.

[FR Doc.72-12824 Filed 8-14-72;8:47 am]

B. M. GUTHRIE

Statement of Changes in Financial Interests

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- (3) No change.
- (4) No change.

This statement is made as of July 5, 1972.

Dated: July 5, 1972.

B. M. GUTHRIE.

[FR Doc.72-12825 Filed 8-14-72;8:47 am]

Notices

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Office of the Secretary

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AUGUST 10, 1972.

[FR Doc.72-12873 Filed 8-14-72;8:52 am]

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[Order No. 73, Revised, Amdt. 1]

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Dated: August 4, 1972.

GEORGE B. HARTZOG, Jr.,
Director,
National Park Service.

[FR Doc.72-12835 Filed 8-14-72;8:48 am]

Office of the Secretary

HARLEY L. COLLINS

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Dated: July 14, 1972.

HARLEY L. COLLINS.

[FR Doc.72-12823 Filed 8-14-72;8:46 am]

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Dated: July 13, 1972.

RAY F. DAVIS.

[FR Doc.72-12824 Filed 8-14-72;8:47 am]

B. M. GUTHRIE

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This statement is made as of July 5, 1972.

Dated: July 5, 1972.

B. M. GUTHRIE.

[FR Doc.72-12825 Filed 8-14-72;8:47 am]

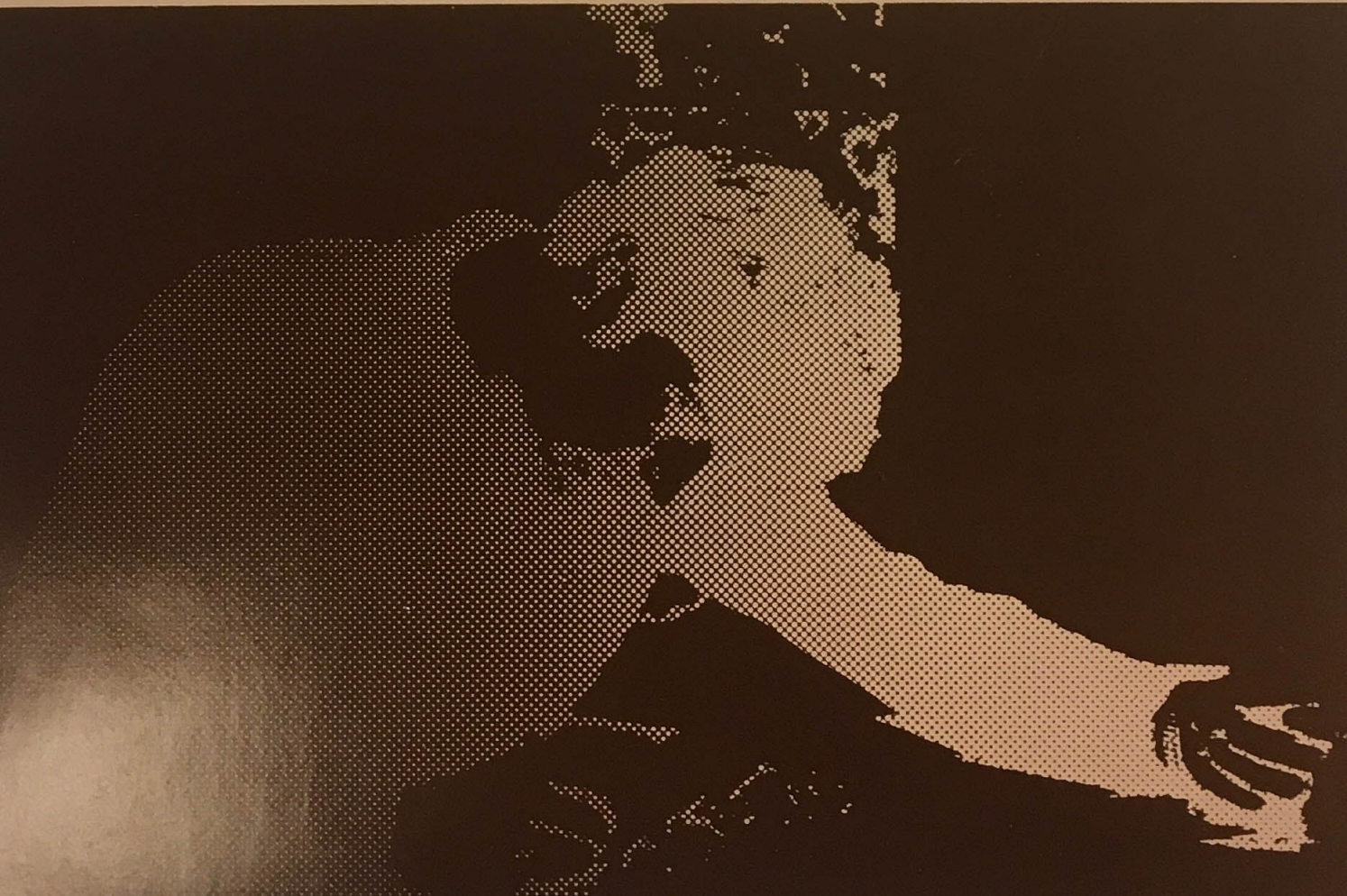


oblinger-smith corporation

personnel



oblinger-smith corporation





Oblinger-Smith Corporation is structured to attract the best and most creative professionals, who together can derive the answers to the many challenges created by our society. This professional environment allows the firm to build a staff combining advanced educational backgrounds with extensive practical experience. The excellent working relationships among these professionals facilitates the creation of intra-disciplinary teams. These teams are organized to insure the best possible combination of ideas and expertise for the successful completion of each individual project.

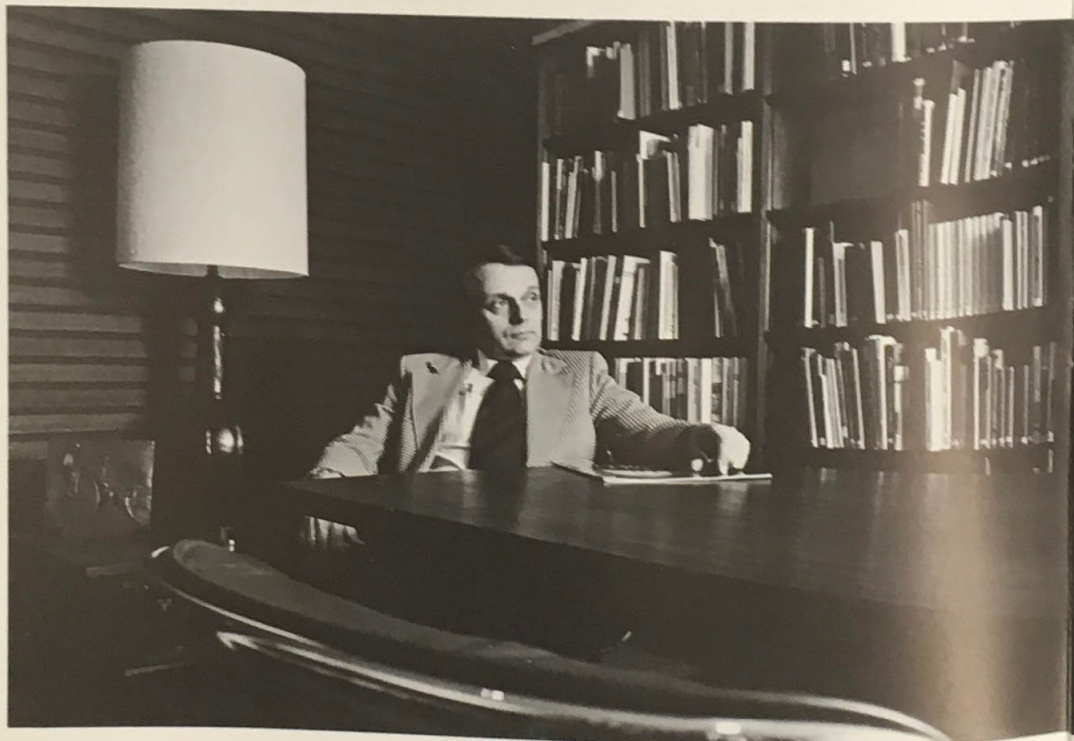


Warren J. Oblinger

President

Co-founder of Oblinger-Smith Corporation - Responsible for planning and for administration of firm - Extensive experience in state, regional, metropolitan and community planning - Associate Professor, Landscape Architecture, College of Architecture and Design, Kansas State University - Instructor/lecturer and legislative consultant in areas related to planning.

- Studied at Purdue University.
- B.S. - Landscape Architecture, Iowa State University.
- Brookings Institute Certificate Regional Policy Conference, 1967.
- Member AIP, ASLA, ASCP, Urban Land Institute, American Society of Planning Officials.



Frank E. Smith

Vice President & General Manager

Co-founder, Oblinger-Smith Corporation -
Responsible for design, development and
administration of firm - Extensive experi-
ence in design solutions to urban prob-
lems - Recognized for the creation of
unique design concepts in public and pri-
vate development - Lecturer at major uni-
versities and to civic and professional
groups.

- B.S. - Landscape Design, Kansas
State University.
- Member ASLA, ASCP.



John D. Gist

Supervises development of both public and private land planning projects, coordination of regulatory aspects associated therewith - Previously, principal planner, Wichita-Sedgwick County Metropolitan Area Planning Department, Wichita, Kansas

B.A. - Architecture, Kansas State University



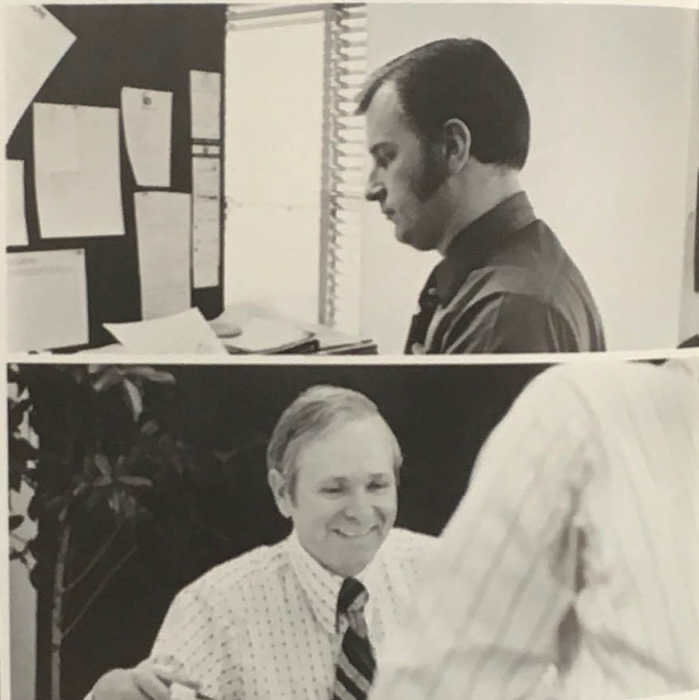
Darrell E. Powers

Responsible for direction of comprehensive planning activities - Widely known for expertise in zoning relating to both public and private sectors - Previously, planner, Bureau of Municipal Research and Service, University of Oregon, Eugene, Oregon, planner, Topeka-Shawnee County Metropolitan Area Planning Department, Topeka, Kansas

B.S. - Landscape Architecture, Kansas State University

M.A. - Regional Planning, Kansas State University

- Member AIP



Maurice L. Miller

Vice President - Planning

Responsible for the comprehensive planning activities of the firm - Experience in all phases of city, county, regional and state planning - Specific expertise in state and regional overall program design preparation, transportation studies and environmental analysis - Previously, senior planner, Wichita-Sedgwick County Metropolitan Area Planning Department, Wichita, Kansas

B.A. - History, Kansas State University

M.A. - Regional Planning, Kansas State University

- Member AIP, ASPO

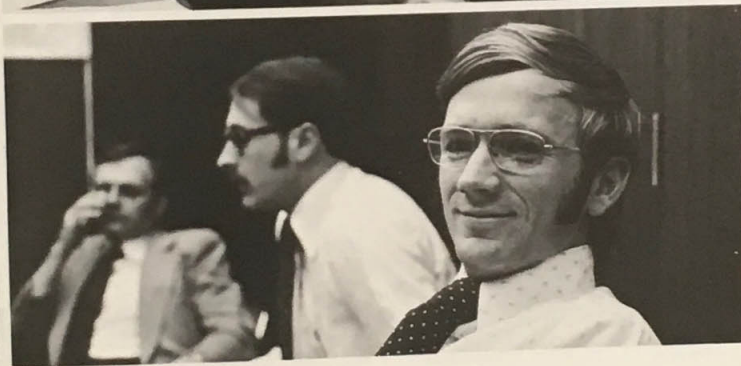
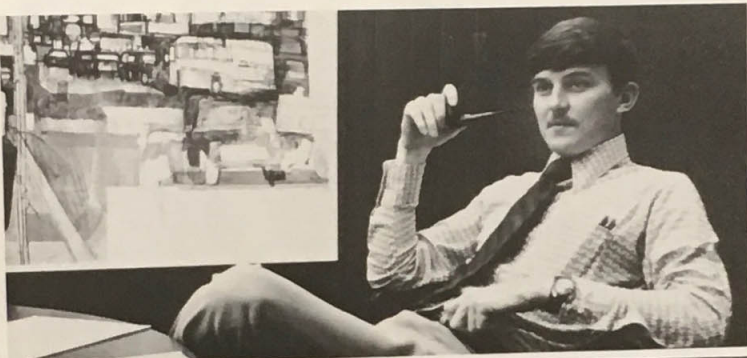
Bill G. Yung

Vice President - Design

Responsible for projects in land planning, urban design, park and recreation planning and housing - Wide experience in projects relating to private economy - Previously, construction survey and base development officer, U.S. Army Corps of Engineers; designer, private design firm, Manhattan, Kansas.

B.S. - Landscape Architecture,
Kansas State University.

M.S. - Landscape Architecture,
Kansas State University.
- Member, ASLA.



Ken Kallenbach

Directs urban design studies of project through city-wide scale - Responsibilities include campus planning, open space design, core area and redevelopment studies, urban redevelopment, historical area studies, comprehensive land use plans, and transportation planning - Experience with both public and private clients in various phases of planning.

B.A. - Architecture, Kansas State University.

M.A. - Urban Planning, University of Washington.



Lowell E. Richardson

Vice President - Development

Responsible for urban program activities in Urban Program Management, Urban Renewal, Neighborhood Development Programs, Open Space Projects, Historic Preservation - Previously, land planner, private consulting firm, Eugene, Oregon; land planner, private consulting firm, San Francisco, California.

B.S. - Landscape Architecture,
Kansas State University.

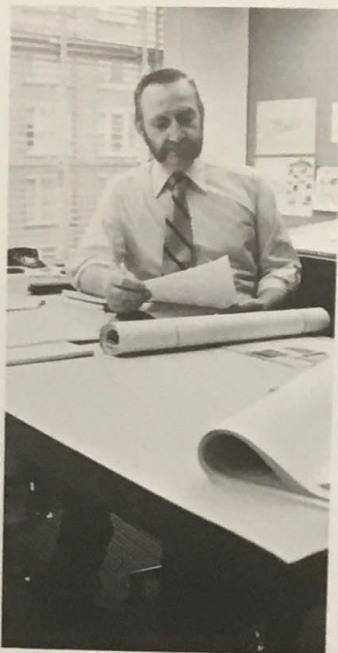
M.A. - Landscape Architecture,
Kansas State University.



Keith Stevens

Management consultant to Oblinger-Smith Corporation - Urban development analyst - Consultant in design and implementation of information systems for business and government - Conducts studies related to investment opportunities in real estate - Previously, has had responsibility for financing and development of conventional and subsidized housing in the U. S. and abroad for organizations such as Boise Cascade Urban Development.

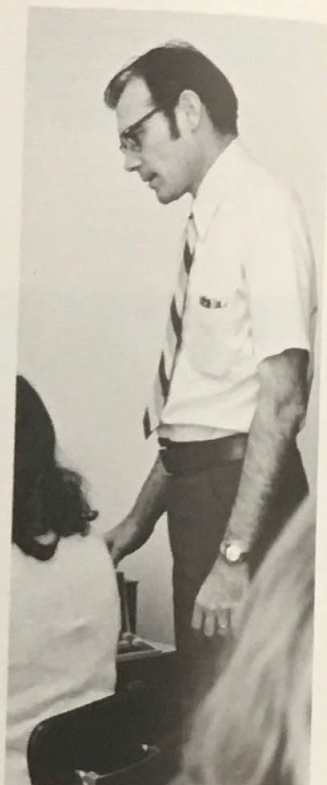
B. S. - Civil Engineering,
Oklahoma University.
M. B. A. - Stanford University.



John H. Gates

Architectural consultant to Oblinger-Smith Corporation - Responsible for design, working drawings, specifications and other contract documents related to projects produced by the Corporation for bid and construction - Consultant for Turnkey Housing Projects in the State of Colorado - Architectural services provided to the Wichita Urban Renewal Agency in various housing related programs - Previously maintained private architectural practice and has been a practicing architect for nineteen years.

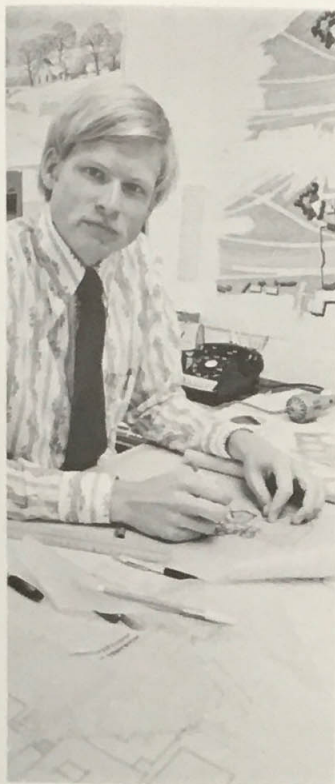
B. A. - Architecture, Kansas State University.



Dwaine Dunn

Responsible for base mapping, data collection, and presentation of graphics for planning projects - Supervises report graphics and production. Previously, civil engineer, County Engineering Department, Wichita, Kansas.

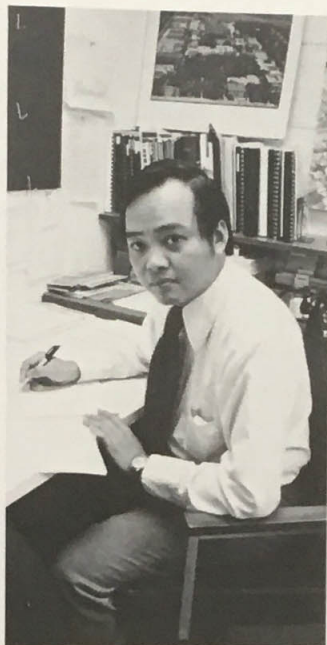
B. B. A. - Business Administration,
Wichita State University.



Edward L. Blake, Jr.

Involved with private, local, state, and federal projects from design conception through project completion - Experienced in design and land planning in the areas of housing, recreation, industry, commercial and urban projects - Previously landscape architect with private consulting firm, Louisville, Kentucky; land planning, Jack P. DeBoer and Associates, Wichita, Kansas.

B. L. A. - Landscape Architecture
Mississippi State University.
- Associate Member, ASLA.



Chung-Tsiang Chang

Conducts studies in institutional development and campus planning, space analysis, land use concept development and design alternatives - Involved with aspects of community planning, central business district studies and urban design - Previously, research assistant, Small Town Redevelopment (Title I Project), Kansas State University.

B. A. - Architecture, Kansas State University.

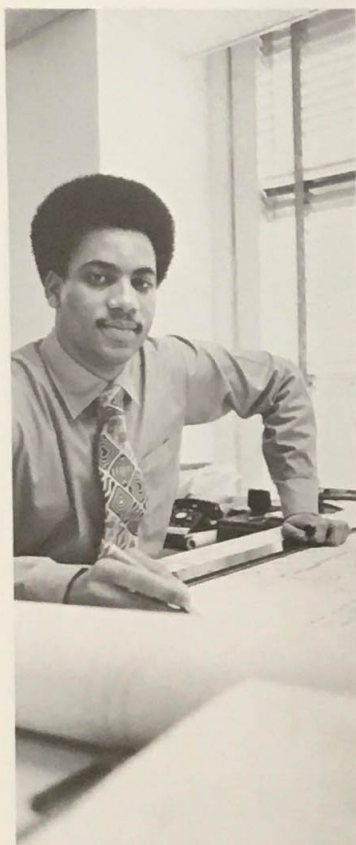
M. A. - Community and Regional Planning, Kansas State University.



Leland Edmonds

Consultant to Oblinger-Smith Corporation - Specialist in State and Regional Planning - Extensive experience in the drafting of the legislation related to planning activities - Presently Associate Professor of Regional and Community Planning, Kansas State University - Previously, urban planner, Housing and Home Finance Agency, Fort Worth, Texas; Director of Planning, Wichita-Sedgwick County Metropolitan Area Planning Department, Wichita, Kansas - Director, Division of State Plans Coordination, Kansas Department of Economic Development, Topeka, Kansas.

B. A. - Sociology, University of Kansas.
M. A. - Geography, University of Kansas.



William L. Cannon

Responsible for environmental planning, including: environmental assessment, solid waste management planning, water and sewer planning, water resource development and water quality management planning.

- B.S. - Agriculture, Kansas State University
- Graduate work - Community and Regional Planning
- Associate Member, AIP.



Thaddeus J. Ford

Designer/planner in urban planning and development - Involved with neighborhood analysis and comprehensive urban planning - Experience in architectural detailing for construction of housing, offices, schools, and universities - Background in modular construction methods and pre-fabricated building systems - Previously, with Wichita architectural and planning firm as architect/planner.

B.A. - Architecture, Tuskegee Institute

Gary L. Wiley

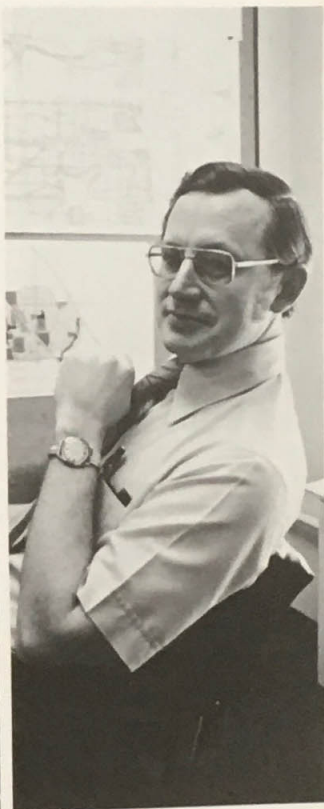
Conducts analysis of residential, commercial, and industrial land planning - Participates in design and development of government sponsored programs - Previously, substation designer, Kansas Gas and Electrical Company, Wichita, Kansas, planning aide, Metropolitan Area Planning Department, Wichita, Kansas.



Keith Zwick

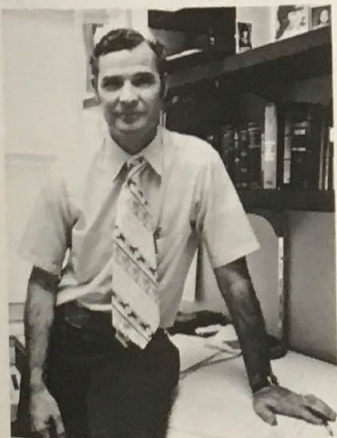
Dallas Office - Responsible for both public and private assignments in land planning, urban redevelopment, and urban renewal project management - Previously, assistant landscape architect, Kansas State University Grounds Maintenance Department; assistant landscape architect, Black Hills National Forest, Custer, South Dakota

B S - Landscape Architecture, Kansas State University.
- Member ASLA.



Everett Stamback

Responsible for production and coordination of technical construction drawings, cost estimating, and cost analysis for all projects prepared by design/development division - Responsible for production of maps and graphics for Urban Renewal Projects - Assists in collection of data for, and preparation of Neighborhood Development Program applications - Previously, civil engineer, Sedgwick County Engineering Department - Registered Land Surveyor, State of Kansas.



Monroe L. Funk, P.E.

Conducts studies in traffic and transportation engineering, traffic safety, parking, highway location and design, water and sewer, solid waste, land use and open space planning - Previously, professor, Civil Engineering Department, Kansas State University - research engineer, Transportation Center, Northwestern University.

B S - Civil Engineering, Kansas State University.
M A - Civil Engineering, Kansas State University
- Registered Engineer, State of Kansas.



Steven F. Randle

Involved with studies in marketing development, planning, community management and public programs - Previously, assistant director, Small Town Redevelopment (Title I Project).

B.S. - Business Management, Kansas State University.

M.A. - Regional and Community Planning, Kansas State University.



Nancy Reed

Involved in technical aspects of Workable Program Certifications and urban programs including: Neighborhood Development Programs, Open Space and Community Development - Previously, administrative aide, City of Wichita, Kansas.



Stephen M. Perry

Prepares design studies relating to parks and recreation, urban development and land planning - Responsible for implementation of projects through construction supervision.

B.L.A. - Landscape Architecture, Kansas State University
- Associate Member, ASLA



John H. (Jack) Galloway

Responsible for project management of design studies involving parks and recreation, urban development, and land planning from inception through construction.

B. L. A. - Landscape Architecture, Kansas State University.

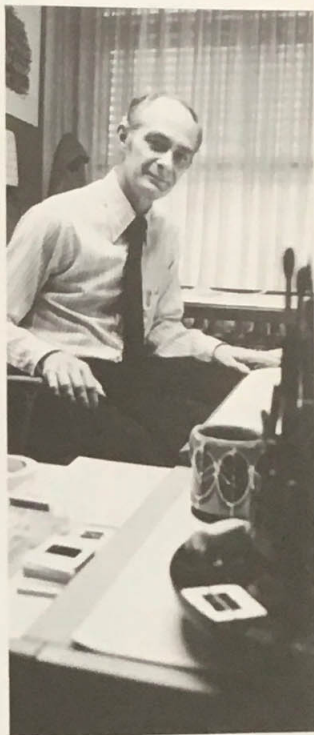
- Associate Member, ASLA.



Marsha Ebaugh

Responsible for technical aspects and implementation phases of urban programs including Urban Renewal, Neighborhood Development, Open Space, Historic Preservation and Community Development - Revenue Sharing.

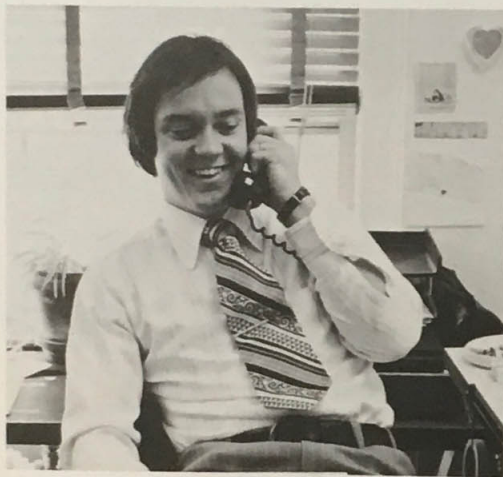
B. A. - Political Science, University of Kansas.



Doran W. Barham

Responsible for all architectural design and prepares illustrations required for proposed public and private development projects - Previously, architect with Wichita architectural firm - Self employed architectural delineator.

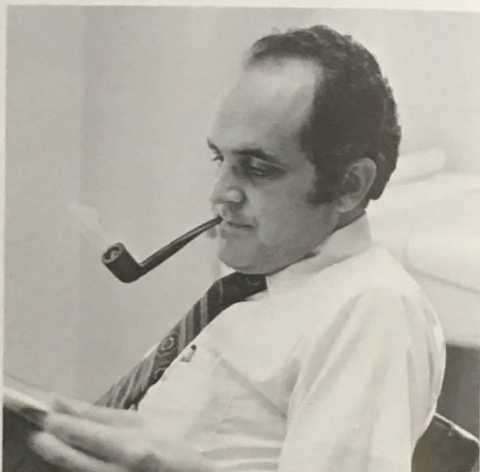
B. S. - Architecture, Kansas State University.



Larry Blankenship

Conducts analysis in land planning projects, specializing in housing and downtown development studies - Previously, land planner, private consulting firms, New York City, Denver, Colorado, Kansas City, Missouri, general manager, Design Construction Division, Suburban, Inc., Overland Park, Kansas

B L A - Landscape Architecture, Kansas State University
- Associate Member, ASLA



J. Robert Dumouchel

Consultant to Oblinger-Smith Corporation - Specialist in the packaging of subsidized housing projects as well as rehabilitation projects - Extensive experience in community organization and improvement programs - Presently operating as private consultant in his major fields - Previously Director of Public Affairs, National Association of Housing and Development Officials (NAHRO) - President, Environmental Research Foundation - Author of numerous articles on housing and community development published in professional journals and trade magazines

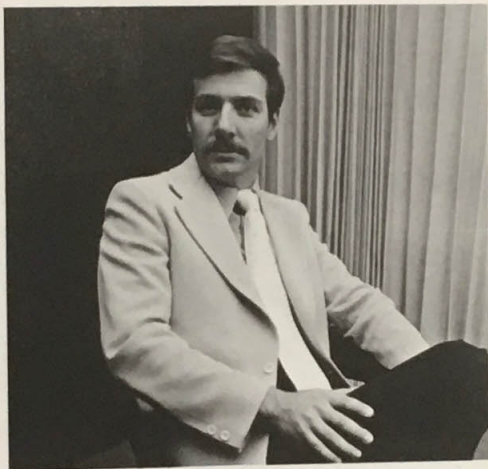
Studied at - Boston College
- Georgetown University
- American University



Jon M. Risdal

Experience in land planning, community unit plans, planned unit developments, parks and recreational facilities, master development plans - Previously, land planner with planning and consultant firm, Atlanta, Georgia, landscape architect, Milwaukee County Park Department, Milwaukee, Wisconsin

- B.A. - Landscape Architecture, Iowa State University.
- M.A. - Landscape Architecture, Iowa State University
- Associate Member, ASLA.



Douglas K. Bereuter

Consultant to Oblinger-Smith Corporation
 - Specialist in State and Regional planning -
 Extensive experience in state planning, inter-governmental relations, program coordination, planning legislation, and community planning. Previously, Director, State Office of Planning and Programming, Nebraska, Director, Div. of State and Urban Affairs, Nebraska, and Urban Planner, U. S. Dept. of Housing and Urban Development, San Francisco. Also Assoc. Prof., Kansas State Univ., Asst. Prof., Harvard Univ. and Assoc. Prof. Univ. of Nebraska.

- B.A. - Geography, Government Sociology, Univ. of Neb.
- M.C.P. - City and Regional Planning, Harvard University
- M.P.A. - Public Administration, Harvard University
- Member, AIP, ASPO.



Sandra Simon

Conducts studies for both private and public programs, including: market analysis, economic base, land use and comprehensive plans, water and sewer, solid waste, transportation and open space - Consultant with regard to federal certification of regional planning commissions.

B. A. - Economics, Wichita State University.



Dennis A. Drumm

Involved in regional and local planning activities, including: comprehensive planning, capital improvement programming, land use regulation and environmental impact analysis - Also public and private urban design.

B. A. - Architecture

M. A. - Regional and Community Planning, Kansas State University.

- Associate Member, AIP.



Cheryl Phillippi

Conducts studies in institutional programming and planning, neighborhood development programming and market analysis - Preparation of Neighborhood Development Program applications - Citizen participation groups with plan preparation.

B.S. - Political Science, Kansas Newman College.

M.A. - Political Science, Wichita State University.



Thomas D. Montgomery

Involved with planning and design in areas which include park and recreational planning, land planning, and project design - Previously, consultant with private developers in Manhattan, Kansas

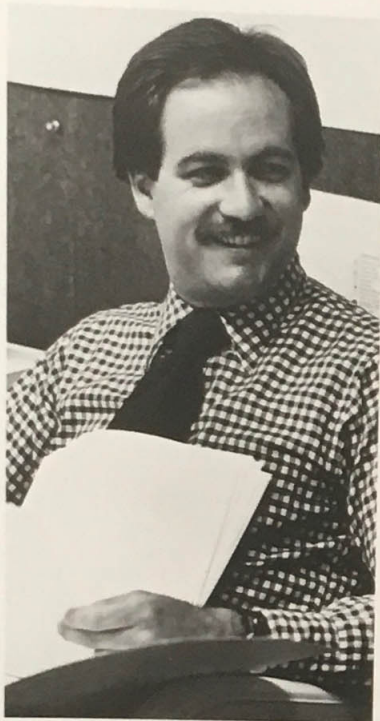
B.L.A. - Landscape Architecture,
Kansas State University

Donald W. Henderson

Conducts recreational planning and design studies for both public and private programs - Experience in land planning and residential landscape design.

B. L. A. - Landscape Architecture, Kansas State University.
- Associate Member ASLA.





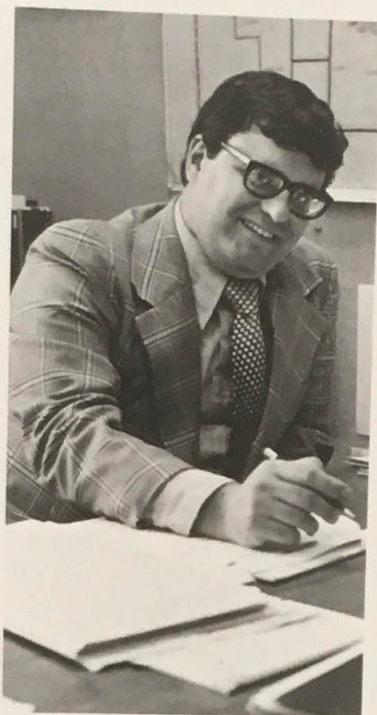
Ed Moery

Responsible for preliminary studies, design, and construction implementation for urban redevelopment, open space, recreation, and private development projects. Previously, land planner with private consulting firms in Detroit, Michigan and Denver, Colorado.

B.S. - Landscape architecture,
Michigan State University

M.L.A. - Landscape Architecture

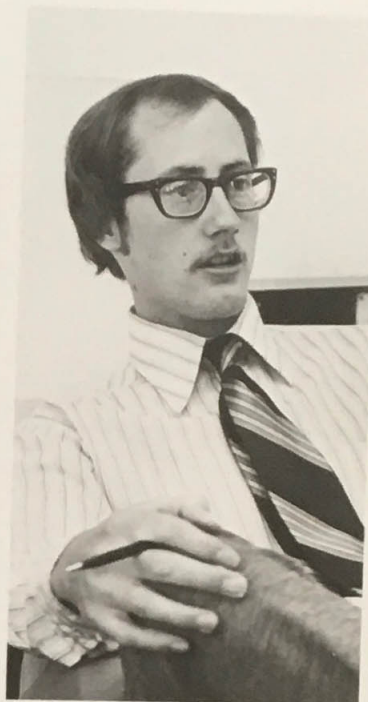
U



Jerry A. Ogburn

Kansas City Office - Directs studies in urban design, land planning, programming, and economic feasibility with special expertise in planned unit developments, private and federally guaranteed new communities, employment centers, urban redevelopment and master plan development for public and private institutions.

Experienced - with private developers



Gustav Byrom III

Conducts studies in regional and local planning, including: comprehensive planning, capital improvement programming, water and sewer, open space, and industrial and rural development.

B.A. - Political Science,
University of Colorado

M.U.P. - Urban Planning, Texas
A & M University

Oblinger-Smith Corporation staff is continually expanding. As new personnel are added to our team we will be sending additional information which may be added to this brochure by placing it behind the flap.

Corporate Offices

Oblinger-Smith Corporation
625 First National Bank Bldg
Wichita, Kansas 67202
316-262-0451

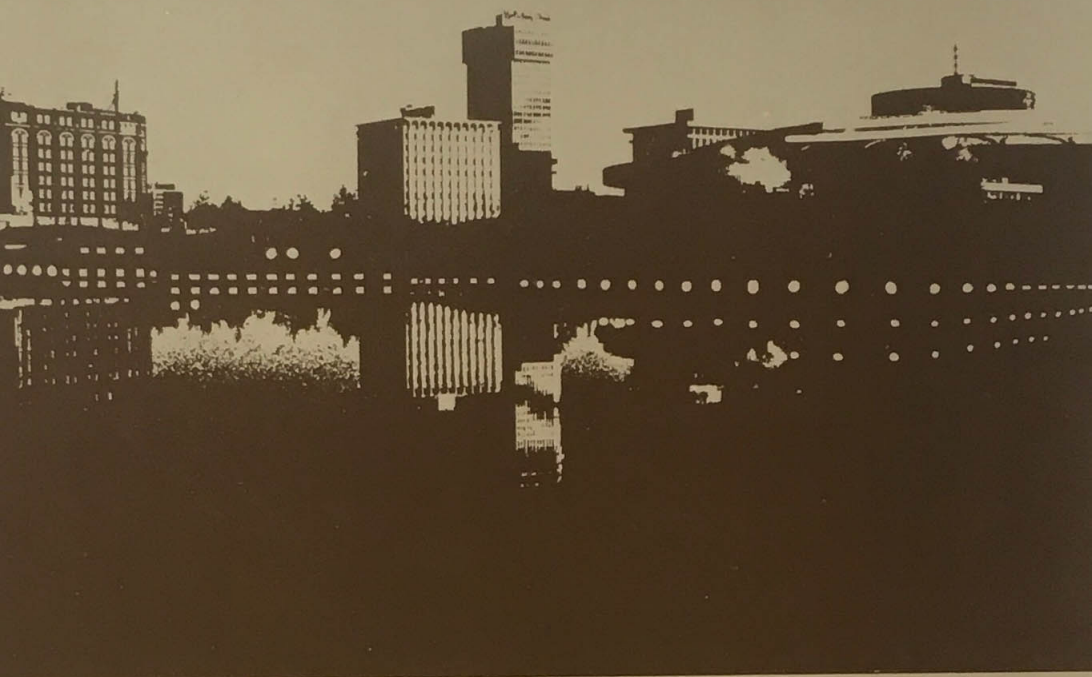
Oblinger-Smith Corporation
4948 Cherry
Kansas City, Missouri 64110
816-756-0256

Oblinger-Smith Corporation
1221 University Building
910 16th Street
Denver, Colorado 80202
303-573-1880

Oblinger-Smith Corporation
(in the Quadrangle)
2800 Routh, Suite 232
Dallas, Texas 75201
214-748-4112

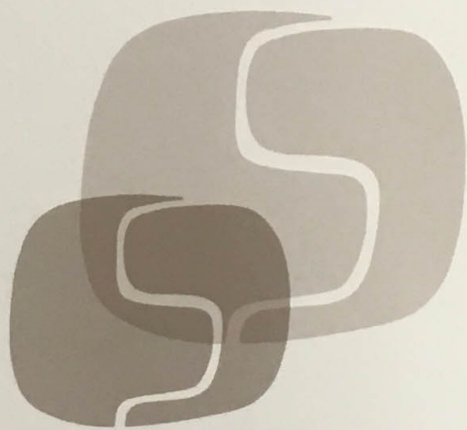


Oblinger-Smith Corporation
CONSULTANTS IN PLANNING,
DESIGN AND DEVELOPMENT



oblinger-smith corporation





oblinger-smith,
oblinger-
corporation

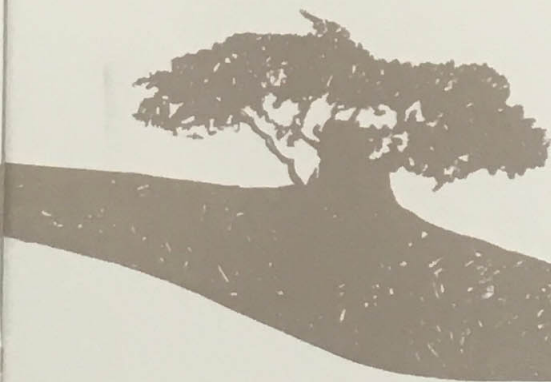


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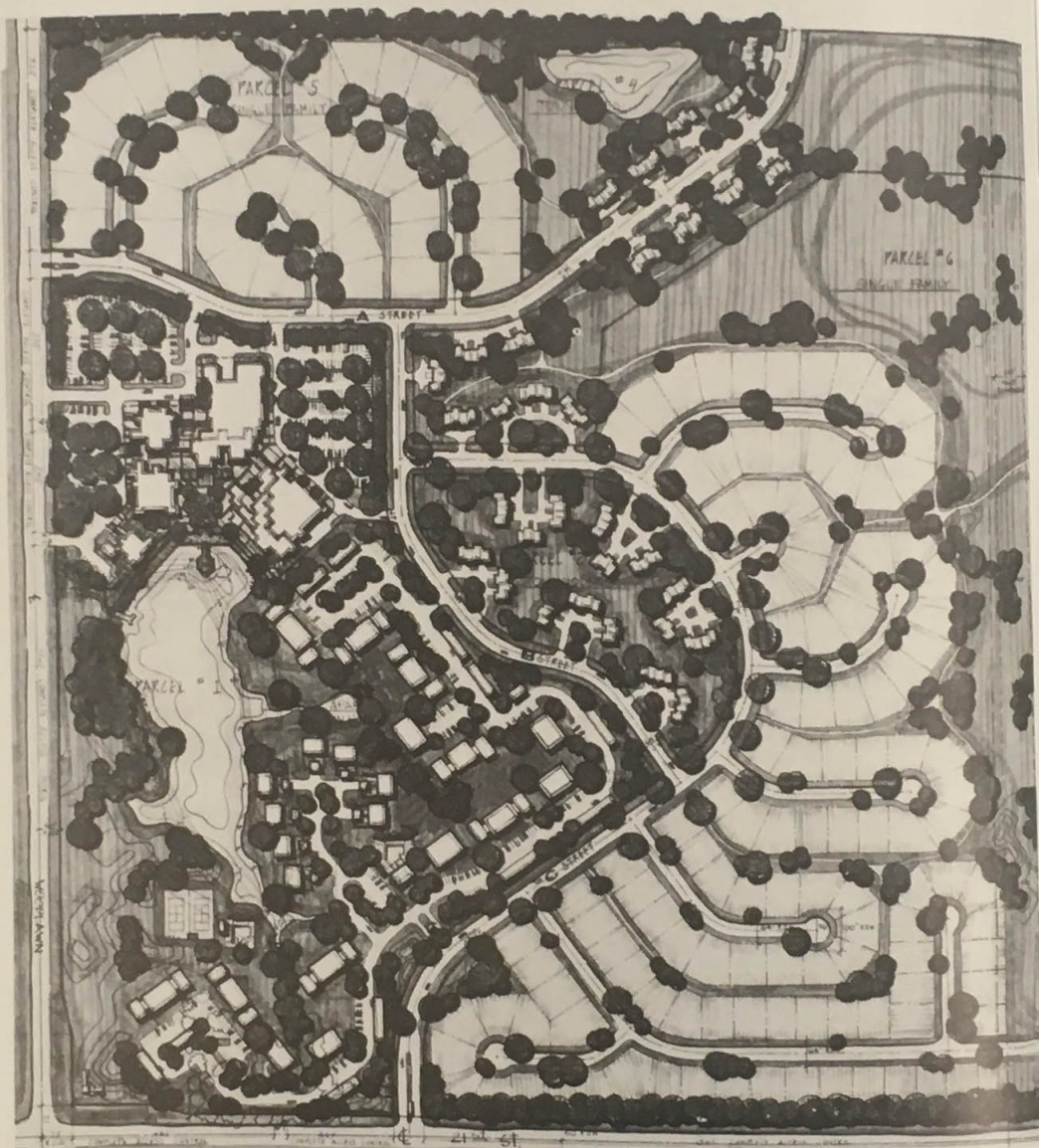
Introduction

This booklet serves as an outline of the experience and capabilities of our Corporation, carefully acquired over the last two decades.

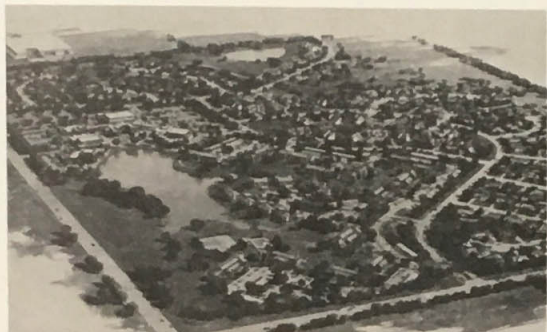
We take pride in the outcome of the merger of the talents and the interests of Warren Oblinger and Frank Smith in 1954. For, that merger has resulted in the development of a truly professional, highly skilled consulting organization. Our work product has been of positive benefit to the lives of millions of persons — in several states, in hundreds of communities, and in thousands of living and working environments throughout our service area. The Corporation is recognized throughout the midwest and southwest as one of the most versatile and successful organizations of its type in the nation.

The Oblinger - Smith Corporation





Phase One of New Community Development Plan—Comotara



As a professional consulting firm representing several related disciplines with twenty years of continuous operation, Oblinger-Smith Corporation has successfully completed a multitude of varied assignments focusing on such aspects of planning and development as:

- state planning
- regional planning
- county planning
- urban planning
- community planning
- land use planning
- community management
- tourism & recreation planning
- open-space planning
- educational planning
- health planning
- cultural facility planning
- real estate development
- design services
- urban redevelopment
- rehabilitation planning

- architectural delineation
- base mapping
- campus planning
- capital improvement programming
- central business district studies
- commercial industrial design
- environmental planning
- feasibility studies
- highway corridor analysis
- industrial land planning
- institutional planning
- land development planning
- land-use surveys and analysis
- market studies
- minimum housing standards
- mobile home parks
- multi-family housing
- neighborhood analysis
- new community planning
- park development
- parking studies
- planned unit development
- public housing development
- regional planning
- regional transportation planning
- solid waste management plans
- subdivision planning
- traffic safety
- water and sewer facilities planning
- water and sewer studies
- workable programs

Specialized planning services provided to virtually every type of private and public client include:

- airport studies
- annexation procedures
- application preparation

Professional Staff

A full complement of personnel combine their expertise on behalf of Oblinger-Smith clients. The Corporation is recognized throughout the midwest and southwest as one of the most versatile and successful organizations of its type in the nation. We are proud of the unusually low rate of employee turnover experienced since our founding some 20 years ago. Oblinger-Smith Corporation is an equal opportunity employer and maintains an effective affirmative action program. Our personnel include the following specialists:

community planners

regional planners

land use planners

landscape architects

architects

economists

environmentalists

public administrators

management specialists

historians

demographers

transportation planners

engineers

business administrators

social scientists

political scientists

geographers

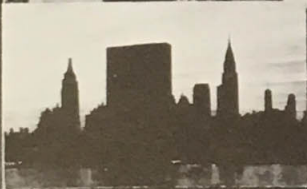
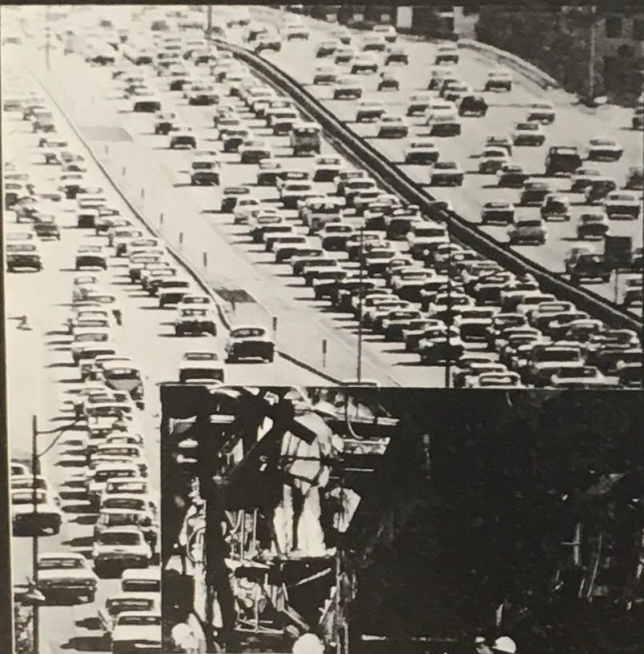
development specialists

agriculturists

In addition to the professional staff, Oblinger-Smith Corporation retains outside specialists who assist in the preparation of projects requiring their particular expertise, further broadening the range of specialized services available to our clients.

Supporting personnel execute assignments by providing their extensive experience and expertise to given projects. The professional and support staff work together on projects to efficiently produce a comprehensive professional work product.





Clients, Public and Private

A fundamental Oblinger-Smith operating philosophy is that implementation of plans represents a crucial part of the planning process. Recognition of this premise throughout our organization assures the preparation and development of realistic and feasible plans and studies. To assure implementation, the financial resources available to each client are carefully considered.



- multi-state commissions
- state governments and agencies
- area-wide councils of government
- regional planning commissions
- water and sanitation districts
- urban county planning commissions
- universities and colleges
- city planning commissions
- city administrative departments
- urban renewal agencies
- chambers of commerce
- community development agencies
- Indian tribal councils
- local housing authorities
- medical institutions
- new town developers
- real estate developers
- leisure industry investors
- office building owners
- eleemosynary groups
- builders



Planning

Oblinger-Smith Corporation offers a continually expanding list of services in state, regional, and county planning to the following clients:

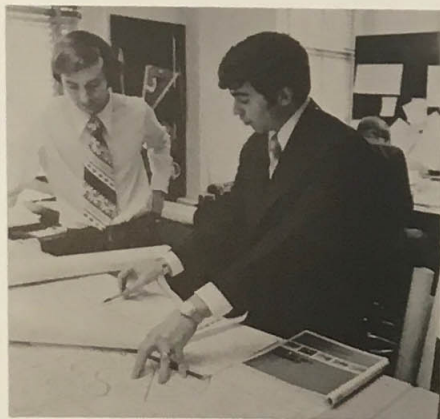
federal agencies
multi-state regional commissions
county planning commissions
Indian tribal councils
water and sanitation districts
state governments and agencies
regional planning commissions
area-wide councils of government

Plan Preparation

administrative organization
comprehensive plans
economic analysis
environmental analysis studies
general development plans
goals and policies development
health planning
housing plans and programs
land use plans
open space and recreation plans & programs
overall program designs
public facilities and utilities
solid waste management plans
spatial planning
transportation
water and sewer plans and programs

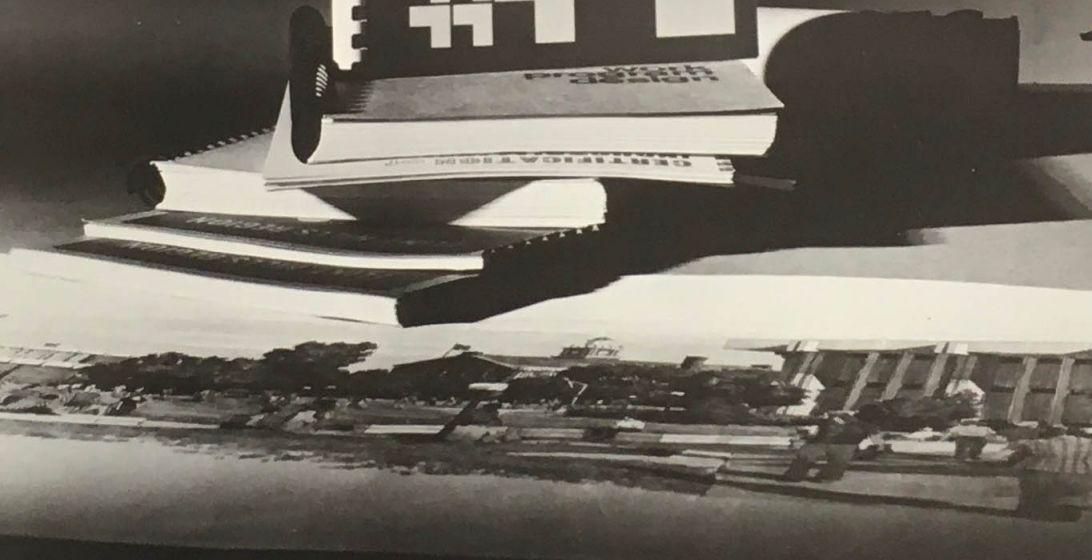
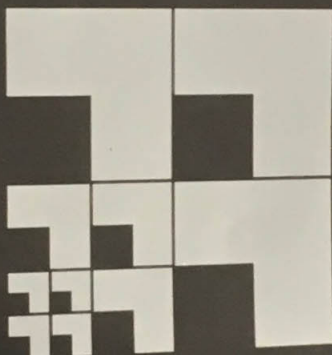
Implementation

budget & personnel programming
legislative research and proposals
regulatory ordinances
project evaluation (A-95 review)



Colorado
Division of
Planning

Overall Program Design





Land Use Planning

Oblinger-Smith Corporation develops alternative methods for solving urban and community problems and meeting future needs. Clients include:

metropolitan areas
city planning commissions
urban county planning commissions
community development agencies
private development groups

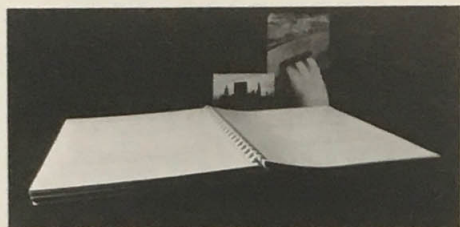
Plan Preparation

goals and objectives
CBD studies
history and physical characteristics studies
economic studies
land use survey and analysis
housing elements
community facility studies
comprehensive planning
base mapping
utility analysis
economic and population studies
open space planning and programming
transportation studies
environmental assessment studies
new community studies

Implementation

citizen involvement
subdivision regulations
annexation procedures
project evaluation (A-95 review)
revenue sharing
capital improvement programs
zoning regulations
policy development
administrative organization
urban redevelopment programs

Community Management



More and more communities are discovering they require information, data, and decision making techniques that are frequently unavailable to them. Oblinger-Smith Corporation provides these services to help solve many community management problems. These services include:

- information system development
- community data library
- base and as-built mapping
- brochure and annual report design
- marketing of community resources
(i.e. industrial development)
- strategies for bond referenda
- community financial systems
- city budget preparation
- uniform and comprehensive accounting
procedure development
- financial status analysis
- bonding programs
- revenue flow projections
- capital improvements programming
- zoning ordinances
- subdivision regulations
- goal and policy development
- annexation policies
- technical application preparation
- redevelopment strategy consultation
- "revenue sharing" allocation





Recreation and Tourism

Oblinger-Smith Corporation analyzes recreational needs and opportunities and establishes plans within the financial capabilities of the following types of clients:

state and local government

state and local agencies

state development commissions

regional planning commissions

economic development commissions

councils of government

city and county planning commissions

city and county commissions

metropolitan agencies

chambers of commerce

developers and organizations

eleemosynary groups

private developers

Preparation

demand analysis (state, regional and local)

recreational park and open space systems planning

evaluation of existing resources and facilities

environmental assessment and impact

economic impact analysis

development of scenic area, historic and open space preservation studies

recreation and tourist facility investment analysis

outdoor recreation planning for programs and facilities programs

recreation programming

development of tourism promotion strategies

tourism potential assessments

Implementation

marketing strategy assessment
development phasing

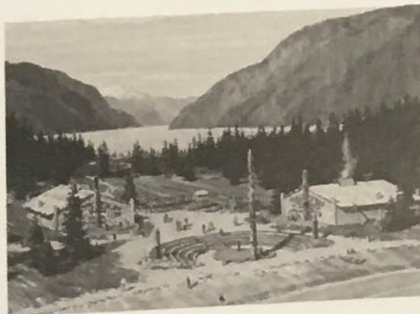
capital improvement programming

cost/benefit analysis

promotion programs

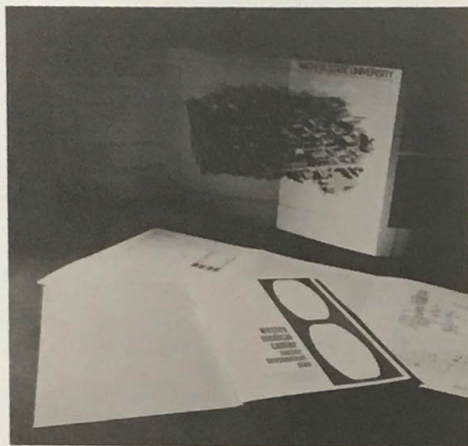
publicity programs

investigation of financial alternatives



State Park Planning,
Kodiak Island and
Battery Point, Alaska

Facility Planning



Working closely with administrative staffs and appointed boards, Oblinger-Smith Corporation prepares physical and policy development plans for:

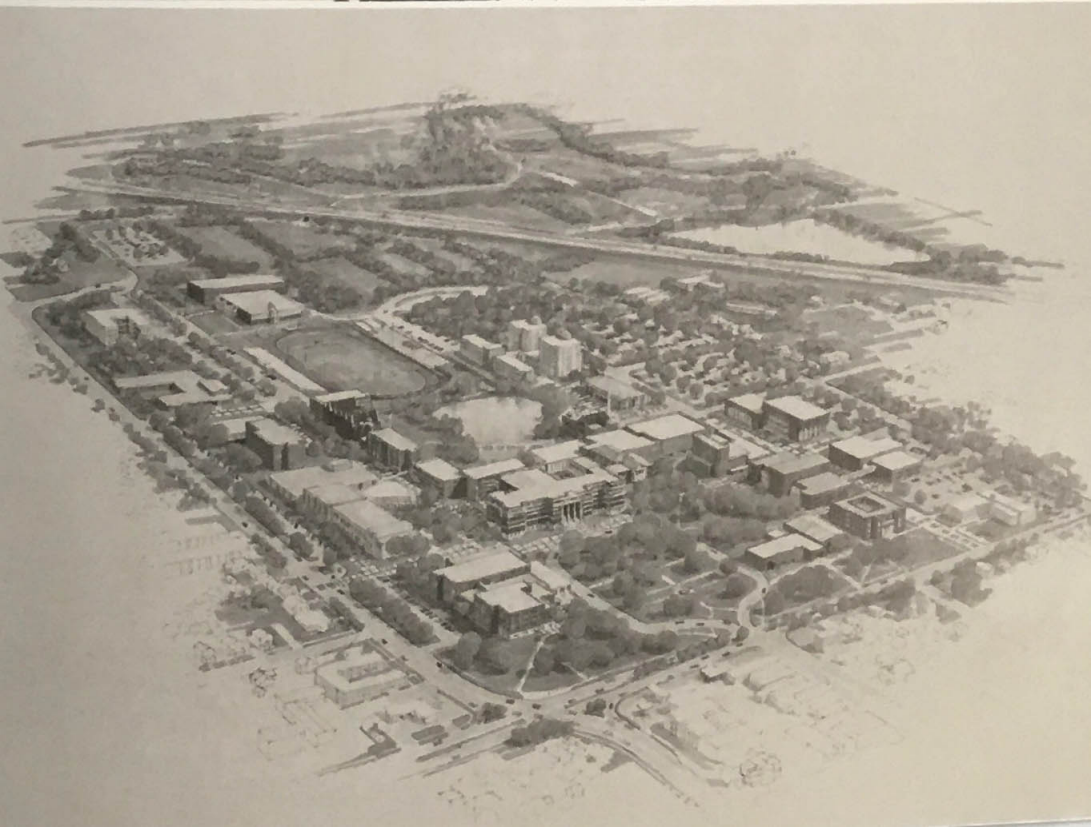
city governments
planning commissions
State Boards of Regents
public boards and private institutions including boards of education
hospitals
hospitals and medical centers
group practice organizations
health maintenance organizations

Plan Preparation

interior and exterior space utilization studies
existing program or service level analysis
projection of user populations and needs
establishment of goals
historical development of facilities
community/institutional relationships
physical facilities needs
public utility and safety/security needs
circulation systems and parking needs
alternative concept development
physical and plan administrative development

Implementation

review and participation procedures
development staging and costing
annual budgeting and capital improvement programming
zoning change proposals
funding and grant application
plan updating





Real Estate Development

Oblinger-Smith Corporation's approach in real estate development is to act as the owner's representative in all, or various, aspects of development. These clients include:

developers

investment groups

residential groups

industrial developers

improvement and benefit districts

builders

institutional groups

commercial groups

recreational groups

Pre-Development Planning

market analysis

rehabilitation and feasibility studies

site planning

location and site analysis

cash flow budgeting

investment analysis/return on equity

design facilities

Implementation

client representation

building design

leasing and promotional activities

construction management

marketing

property management

Recreational Development Appraisal,
Thurber Ranch, North Central Texas



Design Services

Oblinger-Smith Corporation has a wide range of design services and has the capabilities to design and construct to client's anticipated needs. Clients include:

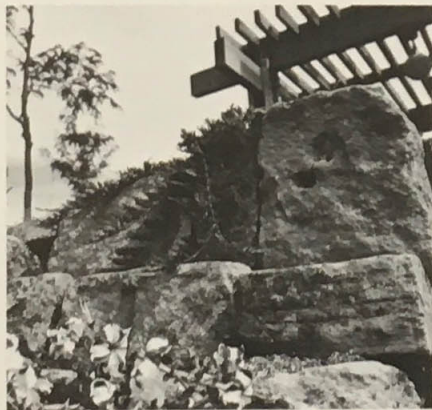
city government
redevelopment authorities
benefit districts
private investors
county governments
urban renewal agencies
private developers
property owners

Plan Preparation

architectural delineation
construction feasibility studies
golf courses
industrial land planning
leisure time facilities
mobile home parks
multi-use studies for public right-of-way
open-space planning
public and private parks
site analysis
river development plans
subdivisions
commercial design
environmental analysis
hike and bike trails
landscape plans
linear parks
multi-family housing
scenic corridor studies
new communities
other recreational facilities and resorts
site selection
residential subdivision

Plan Implementation

preliminary planning
construction drawings
construction inspection
cost control services
promotional graphics
plan representation
zoning assistance
planned unit development
construction specifications
construction management
market analysis
plan delineation
total facility design







Rehabilitation and Redevelopment

Recognizing economic, political and sociological conditions, Oblinger-Smith Corporation has designed rehabilitation and redevelopment programs for numerous communities. Clients for such services include:

city governments
redevelopment authorities
private redevelopers and investors
county governments
urban renewal agencies
neighborhood improvement associations
local development corporations
citizen groups
historic preservation societies

A successful rehabilitation or redevelopment program requires carrying out the planning process from development of basic goals and objectives through determination of implementation details. This process generally includes the following elements:

Planning/Inventory and Analysis of Existing Conditions

public facilities and utilities
economic conditions
building conditions
land use
environmental conditions
social conditions

Program Determination

Development of goals and objectives with input from individuals, interest groups, public officials, and private enterprise.

Development of physical and design alternatives available to implement goals and objectives:

Determination of specific program activities.

Implementation/Financial Alternatives

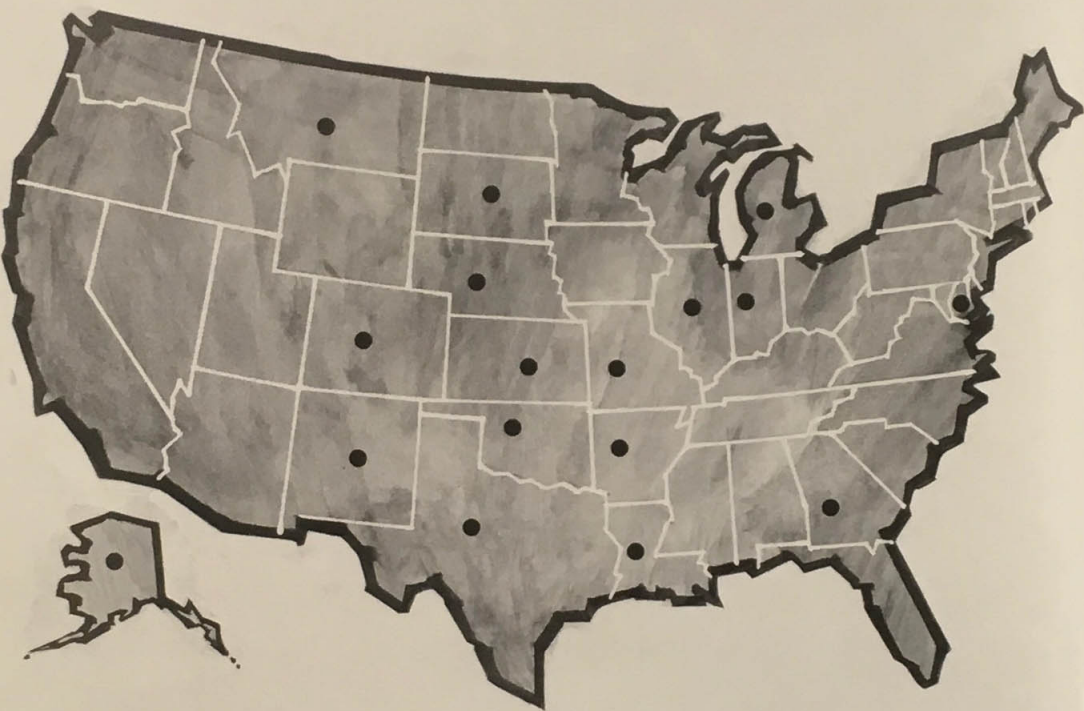
Investigation of all available resources - private, local public, state, and federal.

Determination of combination of resources required to implement the program.

Implementation/Assistance

project organization
development of special benefit districts
applications for federal and state funds
securing redevelopment proposals
project design
project scheduling and coordination
project administration





Location of Services

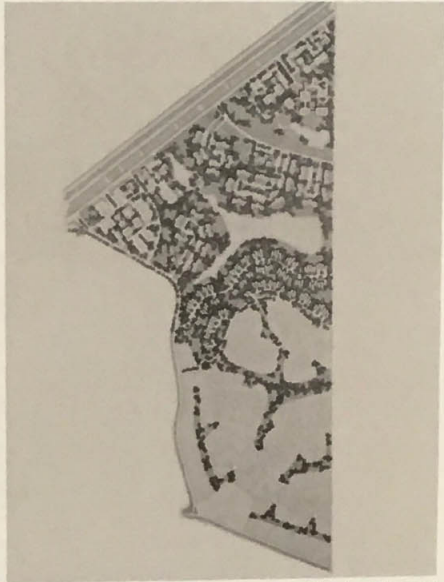
Specialized Planning Services

Oblinger-Smith Corporation has participated in a number of specialized planning services and has the capabilities to relate to any planning activity. A list of clients includes:

public works departments
tribal councils
local development corporations
benefit districts
housing authorities
state governments
medical institutions
airport authorities
private investment groups
profit and nonprofit groups
private institutions
planning departments and agencies
eleemosynary organizations

Examples

architectural delineation
physical facilities evaluation and feasibility studies
central business district studies
traffic engineering safety studies
airport studies
continuing consultation
new communities
overall program designs
city incorporation studies
market studies
solid waste management studies
public transportation studies
parking studies
highway corridor location analysis
planning seminars
environmental assessment studies
multi-use corridor studies



Plan Unit Development, Liberty, Missouri

We invite discussion of our services with any of our previous or current clients, a list of which is available.



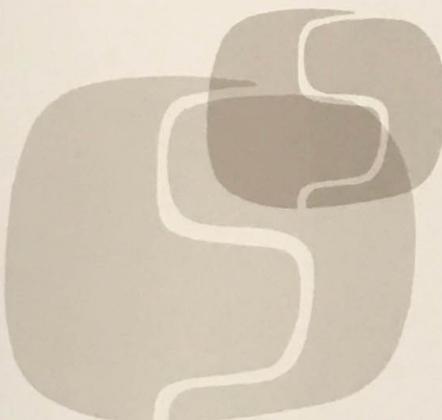
Corporate Offices

Oblinger-Smith Corporation
625 First National Bank Bldg.
Wichita, Kansas 67202
316-262-0451

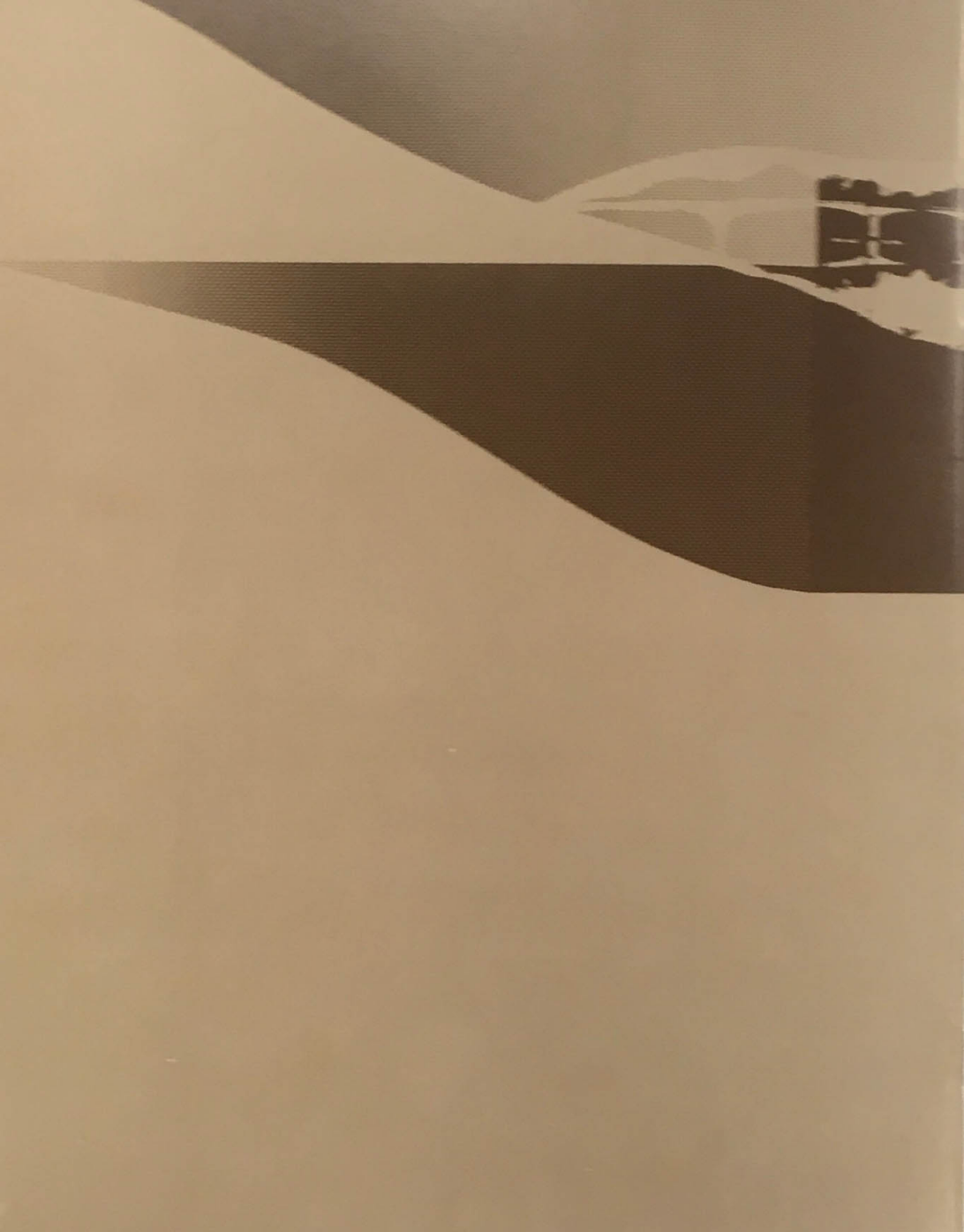
Oblinger-Smith Corporation
4948 Cherry
Kansas City, Missouri 64110
816-756-0256

Oblinger-Smith Corporation
1221 University Building
910 16th Street
Denver, Colorado 80202
303-573-1880

Oblinger-Smith Corporation
(in the Quadrangle)
2800 Routh, Suite 232
Dallas, Texas 75201
214-748-4112



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corporation
smith cor



Federal Register Volume Availability of EIS File

Foreign notes & mfg. D. Lands & Co.

UNITED STATES GOVERNMENT

Memorandum

TO : F. H. MacDonald

DATE: January 28, 1976

FROM : A. J. Goldman *ajg*

SUBJECT: Trip Report; Philippine Islands, Taiwan and Japan - January 12-23, 1976

Philippine Islands

We successfully negotiated with S. Dizon of the Central Bank of the Philippines for the manufacture of 250 million coins for the Central Bank in 1976. I recognized early in our discussions that it would not be necessary to reduce price to your approved fall-back position (reduction in the unit price of the 10 centavo, 25 centavo and 1 peso to the Philadelphia rates). Nor was it necessary for the U.S. Mint to absorb the tooling costs for the odd-shaped 1 centavo and 5 centavo coins. In response to his question, I informed Mr. Dizon that the best way to reduce costs would be to increase the volume of the order and thereby spread tooling costs for the two odd-shaped denominations over a larger quantity. He then asked what the reduction would be if he increased the 1 centavo quantity from 30 to 60 million, and the 5 centavo quantity from 60 to 100 million pieces. The adjusted unit costs which I quoted him (see attached letter from A. J. Goldman to S. Dizon, dated January 16, 1976) were calculated by simply spreading the tooling cost over the larger quantities. I saw that he was satisfied with the quotations for the three higher denominations and as a result did not offer to make a similar adjustment in the 1 peso quote where new tooling costs are built into our quotation even though he agreed to increase the one peso quantity from 10 million to 30 million coins. Our agreements are subject to confirmation by the Central Bank's Monetary Board which meets this week. Dizon is chairman of this group.

One reason why Dizon appeared to be interested in doing business with us again is the fact that neither the Royal Mint of England nor VDM, a private mint in West Germany, has begun to deliver production quantities of the 1975 dated coins. Ten million pieces of each denomination were ordered (the two odd-shaped denominations from the Royal Mint of England and the 3 higher denominations from VDM).

I requested that master hubs be sent to us from the Royal Mint and VDM rather than the Franklin Mint because Dizon indicated that both the Royal Mint and VDM have had problems with the high relief master hubs shipped to them by the Franklin Mint and were making the necessary modifications to strike circulating coins. He showed me a first piece sample of the 1 peso from VDM in which the maximum point of relief on the obverse was higher than the border. This will prevent even stacking.



5010-110

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

The 1976 coins are to have a "medal turn" rather than a "coin turn". This was supposedly done intentionally in the 1975 proof set but they appeared to be rather embarrassed in discussing this matter and it would not surprise me if the Franklin Mint made an error which was too costly to correct. In any event the circulating coinage is to have a "medal turn".

The Philippines have entered into a five year contract with the Franklin Mint for the manufacture of their proof sets although they indicated some dissatisfaction in the price which the Franklin Mint is charging them and some disappointment in the number of orders which was "somewhat greater than 25,000". The contract is irrevocable except if the Franklin Mint fails to deliver on schedule. They were particularly impressed with the very rapid delivery of large quantities of proof sets by the Franklin Mint - only eight weeks after the new designs were approved.

They have also entered into a contract with VDM to provide ready-to-coin blanks for use in their new mint facility which is scheduled to be operational at the end of 1976. They intend withdrawing the old coins from circulation gradually and shipping the coins to VDM as part of the raw material to be used to fabricate cupro-nickel and copper - 40% zinc blanks for the new coinage.

Their new mint will be housed in the large facility being constructed for bank note production. The bank note facility is scheduled to be operational in October, in time for the International Monetary Fund meeting in Manila. The mint will consist of a die manufacturing shop and coining facility. Ten Graebener coining presses (two 200 ton; four 150 ton; and four 100 ton) have been ordered to provide a coining capacity of 250 million to 300 million coins per year. Dick Voss and I spent considerable time with Arsenio Luz, who will be director of the new mint and gold refinery. Mr. Luz has no minting experience and is very appreciative of any help which we can provide. Dick Voss is spending additional time with Mr. Luz this week and I suggested that they send supervisory personnel to our facilities to observe the coining of their five denominations when we are mid-way through the job. Both Dizon and Luz appreciated the offer and a few key people will probably be sent to us for training in die manufacturing and coining.

We met with Dr. Angelita Ganzon de Legarda, numismatic consultant, who manages the Central Bank's Money Museum. She's very much interested in receiving old Philippine dies used by the U.S. Mint in 1903, 1912 or 1920 to strike Philippine coins. She would like to display these dies in the museum. She would also like one of our old gold bullion boxes with a brief description on its significance. I'll arrange with F. B. Frere to try to satisfy these requests.

Additional Notes on our Pricing Proposal

We quoted a price of \$5.00 each on the 3,000 larger boxes for the 1 centavo coins based on the fact that we have been paying less than \$2.50 per box, both in the Philadelphia and San Francisco areas for the half sized boxes (which we quoted at \$4.55 per box).

I would like to discuss our metal and strip fabrication prices further. Must we charge actual cost or can we, for example, charge 24¢ per pound for cupro-nickel even if we can purchase or fabricate the strip at a lower cost? Dizon felt that the quoted prices were very reasonable. I'm certain that VDM has really gouged them for fabrication of 10 centavo, 25 centavo and 1 peso coins as well as blanks for the future Philippine Islands' minting facility. I will talk to other staff members about past practice on the method for passing on metal and strip fabrication costs to the Central Bank of the Philippines.

Taiwan

We met with Robert Chien, Deputy Governor of the Central Bank, and Yun-Hsiang Lin, General Manager, Issue Department of the Central Bank of China.

Taiwan presently has a large surplus of coins and is expanding their mint from 12 to 18 coining presses. As a result, they should be self-sufficient for the foreseeable future. The capacity of their mint would be increased from 400 to 600 million coins per year when the new Graebener presses arrive in approximately 6 months. The meeting was very cordial but I don't foresee any business from the Republic of China in the next few years.

Osaka

The Japan Mint Bureau has 3 coining facilities; the largest at Osaka also serves as the head office and employs approximately 1100. The mint at Hiroshima employs 400, and there is a small, very old branch in Tokyo which employs 400. The Mint Bureau also refines and certifies gold, silver and platinum. We met with the Director General of the Mint Bureau, Shigeru Yuki, and members of his staff. Mr. Yuki has been Director General for about 3 months and was formerly in another branch of the Finance Ministry.

The mint at Osaka was extremely impressive. It consists of a small but quite modern strip production facility, die manufacturing shop, coining division, and elaborate production facility for medals of honor and metallic art objects.

They produced 5.6 billion coins in 1974 at the three minting facilities in a single shift operation. Because of the business slump, only 4.4 billion coins were required in 1975. Their overall coin demand trend, however, using data of the past 20 years, has been an average annual demand increase of approximately 30%. Their lowest denomination coin, 1 yen, is made of aluminum and accounts for about 30% of their coinage demand.

The casting facility consists of seven semi-continuous DC casting stations at which 3 to 4 ingots are cast simultaneously. Each ingot is approximately 3 1/2" thick, 9" wide and 11' long. Melting is done in modern induction furnaces. No more than the required quantities of graphite are used to cover the molten liquid and the furnaces are not over-heated so that excess zinc oxide is not generated. Exhaust fans in the ceiling do an effective job of keeping the environment in the casting area extremely clean.

The ingots are hot rolled to .240" and then cold rolled to the proper thickness for blanking. The 75% copper-25% nickel alloy which is used for the 50 yen and 100 yen coins is given an intermediate anneal midway in the cold rolling process. The copper-zinc alloys used for the 5 and 10 yen coins are cold rolled directly to blank thickness.

Two of the coin denominations, the 5 yen and the 50 yen, have a hole in the center. The hole is imparted during the blanking process by first punching small holes and then blanking washer-like planchets around the small holes. Blanking scrap is chopped to two foot lengths, automatically conveyed from the blanking units and stacked. Their blanking area is not nearly as noisy as ours. This results from the fact that they do not chop scrap nearly as finely as we do. Blanks are then softened, upset, and cleaned prior to coining.

Their presses are all manufactured locally. Blanks are finger-fed. The 1 yen aluminum coins are struck two at a time; all of the other denominations are struck singly.

They reported die life averages from 80,000 for the 100 yen cupro-nickel coin to 200,000 for the 10 yen (95% copper-3.5% zinc-1.5% tin). This is much lower than our die lives. They use carbide inserts in their reeded collars but their resulting life of two million strikes per collar is not as high as we achieve with reeded steel collars.

If legislation is passed and we must manufacture a 2¢ piece, consideration should be given to an attractive copper alloy coin with a hole in the center to: a) distinguish it from the cent by feel; and b) eliminate the debate over whose portrait should be on the coin. We should consider use of a national flower or another appropriate design which would look reasonable. Much copper can be saved with this approach and it is one way off achieving seigniorage protection without going to an aluminum alloy coin.

I was presented with a list of questions in writing regarding U.S. coinage as we were leaving the mint. I'll respond to Mr. Yuki's questions when I send him a thank you letter later this week.

Note on State Department Cooperation

On each of the three legs of the trip, U.S. Embassy personnel were very helpful. Specifically, Howard Lange of the Philippine Embassy, Commercial Attache's Staff; Dwight Craemer, First Secretary at the U.S. Embassy, Taiwan; and Ralph Stephan, Chief, Economic/Commercial Section at the American Consulate in Osaka-Kobe, were very helpful in providing typing and telex facilities, confirming travel arrangements, etc.



MASTER OF THE MINT.

GOVERNMENT OF PAKISTAN

RECEIVED PAKISTAN MINT

2

TELEGRAM: MINT

D.O.No. S.1/74-II

AUG 18 1975

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

LAHORE-9, the 23rd July, 1975.

Dear Mr. Frank A. MacDonald,

I am extremely obliged and thank you very much for the letter dated 27-5-1975 from Mr. Frank W. Rhea, Facilities Project Manager, Bureau of the Mint, Denver Mint in reply to my letter dated 30-4-1975 regarding the construction of the second Mint at Islamabad. The preliminary information etc., alongwith the copies of some of the layout plans have proved to be very useful and we have started assessing the actual production capacity at which the new Mint should be designed. I may, however, mention here that we would like to instal a metal foundry and strips annealing plant instead of purchasing the strips or annealed blanks. The detailed information in any case will be supplied to you as soon as we come to some conclusion regarding the capacity of the Mint etc. However, I have no words to express my most sincere thanks for the assistance being offered by you by furnishing us most valuable advice in respect of the machinery and design of the plant etc.

I regret very much for the delay in replying to your letter as I had proceeded abroad in connection with some official work.

With regards,

Yours sincerely,

S. M. Shaukat
(S.M. Shaukat)

Mr. Frank A. MacDonald,
The Deputy Director of the Mint,
the Department of the Treasury,
Washington D.C. 20220.

May 27, 1975

Mr. S. M. Shaukat
Master of the Mint
Pakistan Mint
Lahore - 9, Pakistan

Dear Sir:

Mrs. Mary Brooks, the Director of the United States Mint, has asked me to respond to your letter to her of April 30 regarding the construction of a second Mint at Islamabad. First, allow me to offer my congratulations and hopes for success in this important undertaking. Also, I want to assure you that the United States Mint will be more than pleased to provide all the information and expertise we have available in assisting you on this project.

As you know, the design and construction of new mints is not a very frequent event in any one country. Our most recent experience was the construction of a new Philadelphia Mint, which was completed and placed into coinage operations in 1969. Although the Philadelphia Mint has many excellent features and is an efficient Mint, we are not completely satisfied with the overall facility and do not consider it as the ultimate model for minting operations. Several factors lead to less than desired results. Two of these were a restricted site and the "crash" time basis for design and construction because of an existing coin shortage. A third factor was reliance on using a "coin roller", which showed promise in the research and development stage of extremely high coin production capability, but which eventually was abandoned in favor of conventional coin presses, resulting in cramped operations within insufficient space, particularly a lack of in-process surge storage space.

We are now in the process of starting on the design and construction of a new Mint in Denver, Colorado. We have completed considerable planning for this new Mint, primarily to develop criteria, space and equipment requirements and cost estimates for planning and budget purposes. This new Mint will have an initial capacity of 15 million coins per eight-hour shift. Copies of our internally developed layouts and equipment/function criteria for this Mint are enclosed. These are probably not too appropriate for your problem because of the planned high capacity of the plant, but we hope they will be of some help to you as general guidance.

Before we can provide more specific recommendations on plant layout and equipment items, we need more information on your planned operations at Islamabad. For instance, what is your planned production capacity and will the method of operations require production of all denominations continuously? Also, at what point in the coin manufacturing process would you start operations, i.e., would you install a metal foundry and strip rolling plant, or would you purchase strip and proceed from there, or alternatively, would you purchase annealed and/or cleaned blanks? This information, plus any other special requirements pertaining to your planned new Mint, is needed before we can accomplish any realistic analyses and computations.

It is suggested that after a minimum of about one month after we receive the information requested above, you send representatives to the United States for further work on developing criteria, layouts and equipment lists for your new Mint. We propose a visit to the Philadelphia Mint, and then conferences in Washington, where we can best assemble a team with diversified knowledge and experience to assist you. We believe the entire planning process would require your representatives to be in the United States for about three weeks.

The United States Mint purchases coinage manufacturing equipment through competitively bid contracts, including some contracts with other than U. S. firms. We can provide names of equipment manufacturers, but would prefer to wait on this until we complete more planning with you.

Lastly, please contact Mr. Frank ~~/~~^H. MacDonald, the Deputy Director of the Mint, regarding further activities on this matter.

Sincerely yours,

Frank W. Rhea

Facilities Project Manager
Bureau of the Mint
Denver Mint
320 West Colfax Avenue,
Denver, Colorado 80204

cc: Frank H. MacDonald
Deputy Director of the Mint

to, F. W. R. R. Rhea

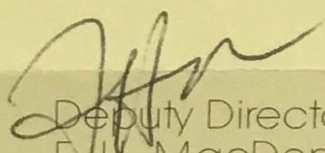
Department
of the Treasury

room: _____ date: 5/9/75

Bureau
of the Mint

Frank:

Would you like to take a shot at answering this? You might explain that we don't consider the Philadelphia Mint to be a model of efficiency, but we are planning and new Denver Mint, and lay out for them some of those concepts. Thanks.



Deputy Director,
F. H. MacDonald
room 2064
ext. 5877



GOVERNMENT OF PAKISTAN
PAKISTAN MINT

TELEPHONE: 330492
TELEGRAM: MINT

No. S.1/74
From

LAHORE-9, the 30th April, 1975

THE MASTER OF THE MINT,
PAKISTAN MINT.

To

..... The Director of the Mint,
..... The Department of Treasury,
..... Washington, D.C., U.S.A.,
.....

Subject: - Construction of a second Mint of Government of Pakistan.

Dear Sir,

I feel pleasure to inform you that the Government of Pakistan have decided to set up a second Mint at Islamabad (the capital of Pakistan), equipped with the latest type of machinery with the main object of increasing production efficiency. This objective can be achieved only when we adopt latest minting techniques with proper use of machinery and scientific lay out of the factory. Since you have got the privilege of setting up a new Mint in your country, we would very much like to be benefited from your experiences and advices in this respect.

I would, therefore, be extremely obliged if you kindly assist us by furnishing necessary material in respect of the machinery you consider suitable for minting, the lay out plan as adopted by you and any suggestions that may suit our country. I would further request you to suggest the names of the Experts with a detailed back ground of setting up of Mints so that we may take his help in working out the plan and preparing the list of machinery that would be required for installation at the new Mint. The objective, as already stated above, is to have a most modern Mint at Islamabad functioning on the same pattern as in any other advanced country of the world. With this aim in mind, a reference is being made to you to kindly enlighten us as to how we should proceed further and the agencies to whom we should approach in the matter.

Thanking you,

Yours faithfully,

S. M. Shaukat

(S.M.Shaukat)

Master of the Mint,
Pakistan Mint, Lahore.

UNITED STATES GOVERNMENT

Memorandum

F - Denver Mint

TO : F. H. MacDonald
Dr. Goldman ✓

DATE: December 3, 1971

FROM : George G. Ambrose *11/24*

SUBJECT: Proposed Visit to Foreign Mints and Manufacturing Plants

Subject visits could provide us with new ideas and innovations which may be of benefit in planning the new Denver Mint.

During the period May 21 through June 17, 1970 the Deputy Director and Technical Consultant made a number of visits to European facilities. I have reviewed their trip report (copy attached) and have outlined those Mints and manufacturing plants, visits to which may be most helpful. Reason for choice of that facility is also indicated.

FACILITY

PURPOSE OF VISIT

West Germany Mint-
Stuttgart, West Germany

Reported to be very carefully planned and laid out. Movements of material, in-process and other, effective. Maximum effectiveness on accoustical features, lighting and internal-external security methods. Also; gravity movement of process materials (downward vertically) has many advantages.

English Mint-
Lantrisant, England

Most outstanding example of automated minting equipment. Demonstrates effectiveness of physical separations, by building, of minting processes. Has a 30 acre site and appears to be closely related to our concept of layout for the new Denver Mint.

→ VDM-
Altena, West Germany
See Schuler
Henry Wiggin Plant-
Hereford, England

Observe thin-cast operations.

Observe thin cast operations and other melting and semi-continuous casting operations.



5010-108

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

I believe we should look into visiting the Mexican and Canadian Mints, should they have new or recently improved facilities.

We would expect to acquire information which would also assist us in optimizing processes and equipment for the new Mint.

Your comments are requested.

Attachment

TREASURY DEPARTMENT
BUREAU OF THE MINT

VISIT TO EUROPEAN MINTS AND MANUFACTURING PLANTS

Report of visit to European Mints and manufacturing plants, and attendance at meetings of Mint Directors and Bankers, by Frederick W. Tate, Deputy Director of the Mint, and Philip B. Neisser, Technical Consultant to the Director, during the period from May 21 through June 17, 1970.

PURPOSE OF THE VISIT

Some years ago, Directors of the West European Mints formed a semi-official organization known as the Mint Directors Conference (MDC), which holds meetings every second year. The purpose of these conferences is to review operations in other coin manufacturing plants; to exchange technical information on production processes; and to keep up-to-date on the newest and most advanced types of coinage equipment. Representatives of the United States Mint were invited by the President of the Conference to attend the 1970 meeting in Scandinavia -- in Norway, Sweden, and Finland, from May 21 through 29, 1970.

The Bank for International Settlements in Basle, Switzerland, planned a meeting of Central Bankers and Mint Directors on June 15 and 16, to discuss the misuse of low value foreign coins in automatic vending machines. This was a followup to a previous initial meeting on this subject held in October of 1969, attended by Central Bankers only. The Federal Reserve Bank of New York was requested to attend the meeting, and by letter dated March 10, 1970 invited representatives from the United States Mint to participate in the discussions at Basle.

The time between the two conferences was spent visiting other European Mints, and manufacturing plants with operations related to those in the United States Mints, and to discuss production and related technical problems of interest to the Mint. Particular attention was given to technical developments in melting, casting and rolling, and to other improvements in manufacturing processes which could be utilized in improving the efficiency of operation in the United States Mints, and also in connection with a new Mint for Denver which is now in the planning process.

European Mints and Manufacturing Plants Visited

The Mint Directors Conference in Scandinavia included visits to the Mints in Norway, Sweden and Finland. A complete listing of mints and manufacturing plants visited during the entire trip is given below:

<u>Mint or Plant Visited</u>	<u>Location</u>	<u>Date of Visit</u>
Den Kongelige Mynt	Kongsberg, Norway	May 21
Kungliga Mynt	Stockholm, Sweden	May 25
Svenska Metallverken Plant	Finspang, Sweden	May 27
Outokumpu Oy Plant	Helsinki, Finland	May 28
Suomen Rahapaja Mint	Helsinki, Finland	May 29
Den Kongelige Mynt	Copenhagen, Denmark	June 1
Svenska Metallverken Plant	Zutphen, The Netherlands	June 1
The Netherlands State Mint	Utrecht, The Netherlands	June 2
Monnaie Royale de Belgique	Bruxelles, Belgium	June 3
Thin-cast (VDM Suby) Plant	Altena, West Germany	June 4
VDM Brass Plant	Altena, West Germany	June 4

<u>Mint or Plant Visited</u>	<u>Location</u>	<u>Date of Visit</u>
Staatliche Munze (Mint)	Stuttgart, West Germany	June 5
Schuler Press Plant	Goeppingen, West Germany	June 5
Royal Mint, Llantrisant	Wales, England	June 8
Henry Wiggin Plant	Hereford, England	June 9
French Mint	Paris, France	June 10
Swiss Federal Mint	Bern, Switzerland	June 12
Bank for International Settlements	Basle, Switzerland	June 15-16

MINT DIRECTORS CONFERENCE

The organization known as the Mint Directors Conference (MDC) includes representatives from practically all of the West European Mints. Conferences are held every second year at the location of one or more mints which provide an opportunity for the members to visit other mints and review the latest production techniques, and to discuss improved manufacturing processes and related matters. The 1970 Scandinavian Conference included visits to the Mints in Norway, Sweden and Finland. The conference agenda included the following:

- a. Production techniques.
- b. Misuse of foreign coins in automatic vending machines.
- c. Proposal for establishment of a European office for registration of parameters.
- d. Coin metals and coin dimensions.

For the first time in the history of this organization, a formal invitation in the form of a letter from the President of the Conference, dated March 17, 1970, was issued to the United States Mint to send representatives

to attend the Conference. (A number of European Mint Directors attended the Official Opening of the Philadelphia Mint in August of 1969.) A representative of the Czechoslovakian Mint was also invited by the MDC to attend the Conference, particularly for discussing the misuse of Czech coins in German automatic vending machines (he did not attend). Other non-conference members included representatives from Turkey and from the Japanese Mint. The following countries were represented at the Conference:

Austria	Belgium	England	Finland
France	Germany - (four Mints were represented)		Italy
Japan	The Netherlands	Norway	Portugal
Spain	Switzerland	Turkey	U.S.A.

In addition, the following companies, which manufacture coinage equipment or produce coinage materials, were represented:

Crouzet of Paris (build minting equipment) - France

Caverne Consultant Engineers Ltd. - England

Minting Equipment Ltd. - England

Olin Brass - United States

Texas Instruments Inc. of Geneva - (U.S. affiliate)

Vereinigte Deutsche Metallwerke A.G. (coin blanks) - Germany

The visits to the Scandinavian Mints included complete well planned tours of each facility with special emphasis given to new items of equipment or to other developments of interest to the overall group. Special exhibits were prepared for demonstration purposes, and extensive discussions were held regarding coin manufacturing problems. Equipment and production demonstrations were supplemented by motion picture and slide presentations at separate sessions, with extensive question and answer discussions regarding manufacturing techniques and related subjects.

In addition to the visits to the manufacturing plants, several lecture and discussion sessions were held in other locations. Principal lectures included the following:

- a. Lecture - "Modern Mint Machinery" by W. T. Baird, former Superintendent of the Royal Mint, London, now a Mint Consultant.
- b. Lecture - "The New French Five Franc Coin" by Director DeHaye of the Paris Mint, regarding the introduction of a clad Five Franc French coin.
- c. Lecture - "Money Management" by Mr. Fletcher of Texas Instruments, Inc.
- d. Lecture - "Classification of Numismatic Editions" by Director Vogeleer of the Belgian Mint.
- e. Lecture - "Mint Equipment" by T. E. Cooper, representing Minting Equipment Limited of England.

"Question and Answer Sessions" were also held to supplement the lectures on particular subjects. Representatives of individual mints were requested to serve as members of discussion panels to answer questions from the floor on selected subjects. These sessions covered a wide range of subjects including minting equipment, production techniques and coinage alloys. The United States participants served on panels at two of these discussions where attention was given to problems related to adoption of clad coins.

Misuse of foreign coins in automatic vending machines is a growing problem in Europe with the expanded use of vending machines and the greater number of tourists traveling back and forth across the borders of affected countries. Considerable attention was given to this problem. This particular subject had been previously discussed at a Conference of Central Bankers at the Bank for International Settlements in Basle, Switzerland, in

in October of 1969, and it was agreed that further attention would be given to this matter at the BIS Conference in Basle on June 15 and 16, 1970. However, the BIS Conference was purposely delayed until after the MDC meetings in Scandinavia.

Temporary agreement was reached at the MDC Conference that a Registration Office would be established in the Bruxelles Mint in Belgium to review proposed issues of new coins for comparison with other present or planned similar denominations, and to advise of any problems that might arise as a result of adoption of the planned coins. A number of the MDC participants planned to attend the BIS Conference in June, along with Central Bank representatives from their respective countries. A copy of the formal Resolution adopted on this problem is included in the BIS section of this report.

The Annual Report of the Director of the Mint (U.S.A.) includes a section titled, "The World's Monetary Stocks of Gold, Silver, and Coins." This particular section of the report is reprinted as an excerpt and is made available to foreign mints, Central Banks and others who provide information for the report. The Excerpt includes a section on "World Coins" showing the denominations of coins of most countries of the world, with additional information as to weight, diameter and thickness, as well as metallic composition. The President of the Mint Directors Conference gave a short speech praising and thanking the United States for publishing this information and making it available to the other countries, since it is the only source of this type of information which is published on a regular basis. He emphasized that this is the best source of information which is available to the new Registration Office in Belgium to use in connection with the problem of the misuse of low value coins. His remarks on this subject were followed by a burst of applause from the other members of the commission.

Private industrial plants were visited as a part of the agenda for the Mint Directors Conference. These included Svenska Metallverken Plant in Finspang, Sweden, and Outokumpu Oy Plant in Helsinki, Finland. The former plant was of particular interest to the MDC members since coinage strip and blanks for the Swedish Mint are manufactured at this plant. Sweden issues a One Krona coin of clad material about the size of the United States 25¢ piece, and a process has been perfected to cover the red edge of this coin. This operation is performed at the Svenska Metallverken Plant by a unique process developed and patented by them. (Further reference is made to this process later in this report).

The latter private facility visited was Outokumpu Oy in Helsinki, Finland, which is the headquarters of a very extensive mining and refining complex throughout Finland. Principal activities include copper mining and refining, and processing refined materials into various shapes and forms for industrial uses, including coinage purposes. Large quantities are exported, but practically no copper is sold to United States companies.

VISITS TO OTHER MINTS

In addition to the three Scandinavian Mints which were visited during the course of the Mint Directors Conference, arrangements were made in advance for an inspection tour of seven other North European Mints. These mints, and the date of visit of each, are included in the tabulation above. Because of the limited time available between the MDC and BIS Conferences, and the planned visits to other industrial plants, it was necessary to limit the time spent at each facility. However, for the purpose of obtaining and recording all available information which could be used to

improve operations in present United States Mints, or in connection with new procedures which might be adopted in a planned new Mint for Denver, a seven page questionnaire form was designed for the purpose of recording pertinent data at each institution visited. These questionnaires will serve as a permanent record of important data at each mint, and therefore, lengthy specific details describing each institution visited will not be included in this report. However, items of particular interest are outlined below:

A. New Minting Facilities

A number of countries are planning new minting facilities including Sweden, Belgium, England, France and Switzerland. General information on each country follows:

Sweden - The Mint in Sweden is very old, having been constructed and enlarged during the period from 1700 through 1850, and manufacturing space is very limited. A decision has been made to build a mint in an underdeveloped and economically depressed location approximately 200 miles north of Stockholm. Planning for the new facility contemplates the possibility that the manufacture of blanks by Svenska Metallverken Plant may be continued, with the new mint designed for limited melting, casting and rolling facilities. If that concept is adopted, the manufacturing process would be primarily limited to the receipt of blanks and stamping them into finished coins, with the usual related manufacturing and control procedures.

Belgium - The Belgian Mint is about 100 years old and outmoded, and a site has been selected for a new mint in the City of Bruxelles. We visited the site of the new mint with the Mint Director and he showed us plans which are underway for the new facility. New Philadelphia Mint plans were used in

designing and planning the new facility. It is planned to construct a complete manufacturing facility, with all operations performed in the new mint. However, pure nickel blanks for the new 10 Franc coin will be purchased. A continuous casting plant is planned similar to one which has been installed in the Mint in Finland, which was observed during the MDC visit to that plant.

England - A new mint has been partially constructed in Llantrisant, England, which is in a depressed economic region in Wales. The new mint is on a 30 acre site, and buildings have already been constructed where coinage blanks are received and processed into finished coins. Plans are underway to construct additional buildings for melting, casting and rolling operations. Strong consideration is being given to a thin-cast method for producing coinage strip by a continuous casting method, with a product approximately 1/2 inch thick, and 8 inches wide. This strip can be cut to any desired length by a flying saw arrangement. Hot rolling under this process is not considered necessary.

France - Plans have been underway for sometime for a new French Mint at Bordeaux, France, and land has been acquired for this purpose. Engineers from the French Mint have visited the United States Mint to discuss new mint plans, and have been given complete detailed plans, specifications and information on the new Mint in Philadelphia. Sufficient progress had not been made to warrant a visit to Bordeaux, but considerable time was spent in the French Mint reviewing the new mint plans and discussing details. The new mint will handle all manufacturing processes from the production of ingots

through the counting and bagging of finished coins. Ingots will be about 16 inches wide, by 4 inches thick and about 16-1/2 feet long requiring hot rolling, plus rundown and finish rolling. It is also planned to process pure nickel.

Switzerland - The Swiss Mint is about 60 years old, and not as old and outmoded as others we saw, but it apparently is in a location that is needed for other purposes. A decision has been made that the present land will be used for other government buildings and the mint must be moved to a new location. A new Mint Director was appointed recently and plans for a new mint are quite complete. It is planned to continue the purchase of blanks as it is not considered economical to manufacture the small quantities required. Consideration is also being given to printing currency, which is now purchased, and a minting and printing complex may be combined at one location.

B. Mint Automation

England - The most outstanding example of automated minting equipment in all of the countries visited was at the new English Mint constructed at Llantrisant. This new mint was planned and constructed for the purpose of manufacturing a very large number of coins for the changeover to the new coinage system in England. Present operations are on purchased blanks only with automated equipment that handles the blanks through annealing and cleaning, riddling and reviewing, and to and from the stamping presses.

Blanks and coins are moved on automatic conveyor belts, with a small bucket and chain arrangement to lift them onto the conveyors. There are five automated lines of 14 stamping presses each in the press room, and the

overall system has greatly reduced the need for manpower -- substantially increasing efficiency and lowering operating costs.

Finland - The outstanding example of melting and casting equipment was observed at the Mint in Helsinki, Finland, where a new small continuous casting system has recently been installed. This system has been in operation for a few months only and they are still working the "bugs" out of it, but it did perform well during the day of our visit. The operation includes a melting furnace from which molten metal is poured into a holding furnace and from which four small ingots about 1/2 inch thick and about 2 inches wide are cast on a continuous basis. The ingots are cut into 18 inch lengths with an automatic cutting arrangement which does not interfere with the casting operation. Longer ingots would be used if the rolling room were larger. Strips are fed by hand into small rolling mills.

Note - A similar continuous casting plant will be installed in the new Belgian Mint. This is comparable to the thin-cast procedure referred to elsewhere in this report, but on a much smaller basis and for a very limited output of coin.

Finland - Another interesting innovation at the Mint was an arrangement to move coin blanks by pneumatic tube from the blanking area on the first floor to the second floor for further processing. These were "1 penni" aluminum blanks weighing 0.45 grams each and the blanks were not marked or scratched. In contrast, several years ago the U.S. Mint contracted with the Lamson Corporation to move 1 cent bronze blanks weighing 3.11 grams each, by pneumatic tube. The blanks were badly nicked and scratched, and the contract was cancelled. (The Mint workers in Finland built their own equipment).

Germany - There are four mints in Germany but the newest and most modern one is at Stuttgart. This is a complete mint which handles all processes from the raw materials to the finished coins, but not for clad coins. The overall mint was very carefully planned and laid out including receiving of raw materials; location of operating rooms; movement of materials through the plant; ventilating, lighting and acoustical features; internal security over values; delivery and safekeeping of finished coins; shipments of coins from the building; and external security measures with practically no guard force. This is an exceptionally well planned and laid out small mint with production capacity of 2 or 300,000,000 coins per year.

C. Stamping Presses

A majority of the presses which are used for stamping coin blanks into finished coin in the European Mints were manufactured by HME, or Schuler. This applies particularly to the newest presses although numerous presses of older vintage with various manufacturers were also noted. All presses observed in all ten mints were stamping one coin at a time only; no dual or quadruple stamping, such as is done in the United States Mints was observed. Press speeds vary with some of the older presses running at 75 to 100 SPM, but the newer presses including HME and Schuler operate at 175-250 SPM, and in some cases up to 300 SPM.

With regard to maintenance of presses, the most favorable comments in regard to newer presses appeared to favor the HME press. The new Schuler Horizontal Press apparently presents more maintenance problems, which are due somewhat to a requirement that the blanks be absolutely perfect before being fed to this press.

A special feature was noted at the Danish Mint in Copenhagen. All presses were connected to a single lubricating system which is operated automatically, taking care of all presses on a continual basis. In addition, a control panel is located in the office of the press-room supervisor, and he can look at the panel and see how fast each press is operating, or if a press is stopped for any reason the control panel so indicates.

D. Reviewing Operations

All of the European Mints visited pay a great deal of attention to the necessity for reviewing both blanks and finished coins. In some mints all blanks and all coins are reviewed -- most of this is accomplished by passing the coins over a moving belt which provides for reviewing both sides. Some interesting equipment was observed in operation riddling blanks, catching bent blanks, and picking out defective pieces in various types of feeding arrangements. One example, if an offsize blank was fed to a coining press, the press would stop automatically before stamping the blank.

No electronic reviewing equipment such as we have ordered from American Machine & Foundry Company to review finished coins was observed. However some unique equipment items were noted which should be reviewed for possible use in our Mints; this will be done as time permits.

E. New Coinage Systems

A common problem discussed with several of the European Mints relates to "reverse seigniorage." This refers to a situation in a number of countries where the government is losing money on the smaller denominations of coins since it costs more to manufacture certain coins than they are worth.

when put into circulation. In some countries this applies to more than one denomination. We were not informed of any situation where an appropriation was obtained to cover the loss on coinage of any particular denomination; instead, the general approach taken was that the loss of seigniorage on one or more of the lower denominations was offset by a sufficient amount of seigniorage on other coins to result in a net seigniorage on the overall coinage output.

A number of Coinage Commissions or Committees have been established in various countries to study the overall problem of coin denominations, with particular reference to the problem of low value coins, and to consider appropriate changes in the coinage systems. Proposed solutions which are receiving attention include:

- (a) Discontinue one or two of the smallest coins since their purchasing power is too limited to justify continued use of these denominations;
- (b) Change the size of the next larger denominations to smaller sizes, but of the same alloy;
- (c) Issue other coins of higher value; and
- (d) Consider other less expensive metals for the smaller coins.

F. Appropriation Problems

Practically all mints visited operate on a yearly budget under the supervision of the Treasury Department or the Central Bank. Most prepare a budget just a few months before the beginning of the fiscal year (as compared with our 12 to 15 month advance budget preparation), and have

current information available as to manufacturing costs and coinage demands. In some cases the coinage estimates are prepared by the Central Bank or Treasury; in other cases the mint prepares or assists in the preparation of the estimate.

At every mint where we raised this question, the Mint Director has no trouble in obtaining approval to exceed his budget. In other words, if the demand for coins is greater than was provided for in the budget, he can obtain supplemental funds on very short notice and either increase his staff or go on an overtime basis. Most Mint Directors didn't understand what a personnel ceiling meant, but in some instances they have been faced with a severe problem in hiring workers because of a labor shortage -- competent employees just aren't available.

G. Other Information

Additional information on each individual mint is included in the questionnaires which were prepared in connection with the visit to each institution.

VISIT TO PRIVATE INDUSTRIAL PLANTS

As indicated in the listing of mints or plants visited, a number of plants were visited which had operations related to the production of coins. A brief description of the operations of most importance to the United States Mint follows:

A. Manufacture of Blanks

The Svenska plant at Finspang, Sweden, and the VDM plant at Altena, West Germany, melt, cast and roll coinage alloys and manufacture coinage blanks for use at a number of mints. No coinage operations are conducted

at either of these plants. Both plants have a cladding operation somewhat similar to the one being installed in the new Philadelphia Mint, and produce clad blanks which are shipped to mints in many locations.

B. Melting Thin-Cast Strip

The VDM subsidiary thin-cast plant at Altena, West Germany, and the Henry Wiggin Plant at Hereford, England, were visited to observe a "thin-cast" procedure in operation. Unfortunately, neither plant was in actual operation during our visit, but we did inspect the equipment used for this operation. Extensive discussions were held with operating officials at each plant regarding the feasibility of using this equipment for coinage materials. The equipment at the Henry Wiggin Plant is currently used to produce blanks for the Mint at Llantrisant, but the strip is hot rolled. Current plans for melting and casting at the new Mint in Llantrisant, England, call for adoption of the thin-cast procedure, but with cold rolling of strip.

It should be noted that consideration was given to the adoption of a thin-cast procedure for the new Philadelphia Mint, but this method had not been perfected at that time and the state of the art had not progressed to a point (about '63 - '64) to justify installing equipment of this type in the new mint. However, for the new Denver Mint, careful consideration should be given to this procedure and another look should be taken at that time.

C. Ring Rolling Process

The Svenska plant in Zutphen, The Netherlands, has developed a new procedure for converting large castings to strip thickness suitable for blanking which they claim is superior to the "thin cast" procedure. This

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C. Ring Rolling Process

The Svenska plant in Zutphen, The Netherlands, has developed a new procedure for converting large castings to strip thickness suitable for blanking which they claim is superior to the "thin cast" procedure. This

process is designated as the "ring rolling method." The ring rolling method consists of casting a large quantity of metal into the form of a ring, weighing about 14,000 pounds and having a diameter of 9 feet.

After milling and cleaning, the ring is processed on an unusual rolling mill complex which continues to roll it until the strip - still in ring form - reaches a total length of about 800 feet. The ring is then cut and coiled for further processing. Equipment required to handle the expanding ring, and space requirements, are quite complicated and extensive. For additional information on this process, see special report dated July 7, 1970, to Mrs. Brooks from Philip B. Neisser, subject: "Visit to Foreign Plant -- New Process for Melting, Casting, Rolling Brass Strip, Including Coinage Alloys."

D. Covering the Red Edge of Clad Coins

The Svenska Metallverken Plant in Finspang, Sweden (referred to previously in this report), has developed and patented a process for covering the red edge of Swedish coins which are about the size of U.S. 25¢ pieces.

The Swedish One Krona coin is a clad coin with a cladding of 75-25 copper-nickel clad on a core of 97-3 copper-nickel. To avoid the red edge such as appears on United States 25¢ and 10¢ pieces, Svenska has constructed equipment to conceal the red edge. In a 10 station automatic machine, each blank is handled individually, and a sufficient amount of red edge core material is removed with a sharp cutting tool. The remaining uncut portion of the blank edge is then folded over in a subsequent milling or upsetting type of operation, successfully hiding the copper

colored core. For further details, see special report on this subject dated July 7, 1970, by Philip B. Neisser, "Report on Project: Covering Red Edge."

Negotiations have been undertaken with Svenska for the manufacture of similar equipment for the United States, which could be used to cover the red edge of our cupro-nickel dollar and half dollar denominations when these are authorized by legislation. Initial costs quoted for necessary equipment and royalty fees were considered too high, but these items are still under consideration (see letter from Svenska dated June 12, 1970, and our reply dated July 24, 1970).

BANK FOR INTERNATIONAL SETTLEMENTS CONFERENCE

A Conference was held at the Bank for International Settlements in Basle, Switzerland, on June 15 and 16, 1970, to give attention to the misuse of lower value coins and discs in automatic vending machines. This was the second BIS Conference on this subject. The first meeting was held in October of 1968 and was attended by representatives of Central Banks only, with no representatives from mints present. At that meeting it was determined that a second meeting should be held with representatives from Central Banks and from Mints in attendance.

The following countries were represented at the BIS Conference in June 1970:

Belgium	Japan
England	The Netherlands
France	Sweden
Germany, Federal Republic of	Switzerland
Italy	U.S.A.

The agenda for the conference included the following items:

1. Introductory remarks by the Chairman.
2. The magnitude in each country of the fraudulent use of coins and discs in vending and other slot machines in relation to the total turnover of such machines.
3. The measures being taken in each country to prevent the fraudulent use of coins and objects resembling coins, including the legal bases for combating abuses in this field.
4. Setting up of an international registration office on the lines indicated in the letter dated 5th August 1969 from the Deutsche Bundesbank.
5. Proposals for the establishment of a permanent secretariat if it is considered that some sort of international cooperation in this field would be desirable.
6. Any other questions.

Representatives of England, Switzerland and the United States had prepared papers in advance on Items 2 and 3 of the agenda; these papers were reproduced and made available to all representatives. Our submission which was based on a cross-country analysis of the problem including reports from New York, Philadelphia, Denver, and San Francisco, with a special report covering the entire country submitted by the National Automatic Merchandising Association (NAMA). Our report is available in the files for reference purposes.

Representatives from each country were requested to provide information and comments on Items 2 through 5 of the agenda. Following these discussions, there was general agreement that the Resolution adopted by the Mint Directors Conference in Stockholm, on May 26, 1970, would be acceptable to all countries represented.

The Stockholm Resolution provided for:

Establishment of a Coin Register Office in the Bruxelles Mint in Belgium for -

- A - Keeping a register of coins issued or to be issued with their parameters, and
- B - Giving information to the Mints wanting to make a coin with parameters different from those of the coins in present use..

The Members of the Mint Directors Conference agreed to:

- A - Ask the Coin Register Office for information before the parameters of new coins have been settled,
- B - Communicate the information given by the Coin Register Office to the national authorities concerned, and to draw their attention to parameters liable to disturb other countries, and
- C - Notify the Coin Register Office of the parameters finally decided upon.

Recognition was also given at this conference to the value of the Excerpt from the Annual Report of the Director of the Mint (U.S.A.) titled "The World's Monetary Stocks of Gold, Silver and Coins in 1968." This

document which is the only one of its kind available was referred to as the best possible working tool for the Coin Register Office in carrying out its duties under the new Resolution.

A separate report prepared by Mr. Marcus A. Harris, Senior Vice President of the Federal Reserve Bank of New York, who represented the Federal Reserve Bank at the BIS Conference, is available in the files for reference purposes; also, a report from the General Manager of the BIS which was forwarded through the FRB of New York.

CONCLUSION

The above report necessarily provides highlights only of the visits to ten mints and seven industrial plants. However, the itinerary provided an opportunity to inspect ten North European Mints which are undoubtedly among the best minting facilities in the world. The extensive observation and reviews of production methods, as well as discussions of technological developments including planning for new mints, provide adequate assurance that the technology in the United States Mints is not lagging behind that of other countries. The outstanding difference in production techniques, aside from the volume of coins produced, was in relation to coin stamping operations, i.e., single vs. dual or quadruple striking.

The increasing coin demand in this country during recent years, together with the limited available space in the three United States Mints, resulted in the development and successful utilization, by Mint Technicians, of four-strike coining presses. By contrast, however, coin stamping operations in all European Mints visited were limited to single striking only. In connection with production planning for a new Denver Mint, and with the expectation of unlimited space for coinage operations, a careful study will be made

of the economics of equipping that mint with four-strike presses as compared with single strike operations.

The inspection of private European plants also provided our first look at thin-cast melting equipment. This casting method was considered for the new Philadelphia Mint, but had not been completely developed at that time. For the new Denver Mint, careful attention will be given to the possibility of utilizing this type of equipment.

Considerable attention has been given during recent years to covering the red edge of our clad coins, and several American companies have submitted various proposals to accomplish this objective. The visit to Sweden provided an opportunity to witness a successful procedure for covering the red edge. We have already received proposals from Svenska, following the visit to their plant, for the construction of equipment to cover the red edge of our large denominations and royalty fees, but the prices were considered too far out of line. However, negotiations are continuing with the Swedish firm for more reasonable prices.

Follow-up actions, which have already been taken on other matters are detailed below:

1. In connection with the Engraver's need for additional reducing lathe equipment, we have requested the Gudel-Lienhard Company of Bienne, Switzerland, to submit a cost proposal for their equipment.
2. We have arranged with the Schuler Press Company of Goeppingen, West Germany, for the acquisition of two horizontal high-speed coining presses on a "test purpose" basis.

3. Negotiations are in process to acquire from the Cincinnati Milling Company one HME Dial Feed Coining Press, also on a test basis.

Other possibilities for improvements in our manufacturing operations, although of a more minor nature, will be pursued as time permits.

F W Tate

Frederick W. Tate
Deputy Director of the Mint

July 30, 1970

U. S. TREASURY DEPARTMENT
MAIN BUILDING

August 25, 1970

RECEIVED

Hon. Betty Higby
Superintendent
United States Mint
Denver, Colorado

AUG 27 1970

Mrs. Higby:

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

Enclosed for your information is a
copy of my report "Visit to European Mints
and Manufacturing Plants," together with
copies of Phil Neisser's two memorandums,
dated July 7th, re "Visit to Foreign Plant;
New Process for melting, casting, rolling
brass strip, including coinage alloys" and
"Covering Red Edge."

F. W. Tate

F. W. Tate

Enclosure

Frederick W. Tate

Room 2064

Ext. 5877

*H. J. [unclear]
(Copies to Div. H. & J. [unclear])*

Mrs. Mary Brooks
Director of the Mint

July 7, 1970

Philip B. Weisser
Technical Consultant

Visit to Foreign Plant

New process for melting, casting, rolling brass strip, including coinage alloys.

Svenska Metalverken - Nederland N.V.
Zutphen, Holland, Manager Franz Huybregts
Telephone 05750-5454

Background

The primary low cost world method for processing brass, etc., is like the new Philadelphia Mint, i. e. large ingots, hot rolling.

Under investigation, not yet proved as competitively low cost, is the "thin cast" procedure.

The following, first developed by Svenska at Finspong, Sweden, is incorporated as the basic process in the new plant in Holland.

Accompanied by Mr. Jonasson, Technical Vice-President of Svenska at Vasteras, Sweden and Mr. Huybregts, the Plant Manager, I witnessed this procedure and equipment.

Melting: Conventional 10-ton medium frequency electric direct tilt and pour furnaces.

Molten metal poured into ladle equipped for bottom pour. Ladle transferred by OH crane over centrifugal casting machines, set up with mold liners so as to cast horizontally a brass ring having a diameter of 9 feet, 24" wide, 5" thick.

As cast, the ring weighs 14,000 pounds. The ring is removed from the mold, transferred by OH crane to a huge lathe/boring mill, and all 4 sides are milled clean to a weight of 10,000 lbs.

The brass ring is then conveyed by OH crane or lift truck to the break-down mill site. This "ring rolling mill" is a 4-High Mill laid on its side; mill stanchions are necessarily spread wider than conventional. One of the two work rolls is withdrawn laterally to permit the brass ring to be set in place in the mill by OH crane; the work-roll is pushed back into place by hydraulic piston.

Rolling is started. When ring has begun to be reduced from its initial 5" thickness and become much larger in diameter and more limber, support rollers come into place to prevent its collapse. Finally, a puller roller, as its length extends, pulls the ring out into the plant about 400 feet, so that the total length of strip at .120" gauge is about 800 feet. At this gauge, the mill is stopped, the ring cut, and the strip is wound up on a conventional coiler for further processing on finish mills without annealing. The manager claimed that the strip could have been rolled down on the ring mill to finish gauge with tight tolerances; if space permitted.

The company claims that the process eliminates the need for pre-heating the bar for hot rolling, and, because the metal has been centrifugally cast and is fine grained and dense, produces a higher quality for "deep drawing" than any competitive process.

Of course, the fact that Svenska developed and built this mill, and would like to recover some of its R & D cost by selling it to others, should lead us to great caution in evaluating its merits. Detailed and frank, truthful cost data would be required. However, this new plant is operating 2 shifts with this new equipment; its product, in various stages of fabrication was everywhere in evidence. It is obviously not a lemon and not a plaything; it should be seen again, in connection with plans for new Mint Denver.

RECEIVED

UNITED STATES GOVERNMENT

Memorandum

AUG 27 1970

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

DATE: July 7, 1970

TO : Mrs. Mary Brooks
Director of the Mint

MB

FROM : Philip B. Neisser
Technical Consultant

PBN

SUBJECT: Report on Project: Covering Red Edge [U. S. Dollars and Half Dollars].
Visit to Svenska Metallverken Corp., Sweden [a subsidiary of Granges,
Essen, S.M.]
Plant at Finspong, Sweden - May 27-30, 1970.

Background: See Mint File - F/C Sweden-General

Briefly, the Mint indicated an interest in the Svenska process, currently being used by the Swedish Mint in the fabrication of no-red-edge "one Krone" blanks.

Officials of this company are:

Home Office - Västerås, Sweden

President - Philipson

V. President, Finance - Tolf

V. President, Operations - Jonason

V. President, Marketing - Brinkman

V. President, Administration - Holm

Finspong Works

Mr. Ake Hammer Lund, Works Manager

Mr. Mikael Ebert, Manager, Copper & Brass Mill

Mr. Karlsson, Director, Rolling Operations

Mr. Remning, Designer, Edge Covering Machine

Mr. Eric Lindstrand, Director of Research

Mr. Alvar Granstrom, Chief Engineer, Design and Fabrication

Wednesday, May 27, 1970

In company with members of Mint Directors' Conference, including Mr. Tate, visited the Svenska Metallwerk Plant at Finspong. At initial conference, Mr. Eric Lindstrom, Director of Laboratories, explained how he and Mr. B. Ulfvot, Director of the Swedish Mint, had collaborated on building a "pendulum testing machine" to measure the R-D product of the former Swedish 1-Krona Coin (50% silver, 40% copper, 5% nickel, 5% zinc), and their combined efforts to find a clad metal combination having the same R-D product. This search resulted in choice of 75/25 Cu-Ni clad on a core of 97 Cu, 3 Nickel (trace manganese). Cladding .010" $\pm$.05%.



European Governments accustomed to "negative seigniorage; i. e. many coins cost more than face value; Swedish Government willing to pay large premium for covering the red edge of this coin.

Svenska Metallverks already had had long experience in bonding dissimilar metals on a process somewhat similar to Olin's, [see later description]. Svenska, at request of Swedish Finance Minister, immediately commissioned to build equipment to cover red edge of blanks. Considered, if machines successful, a licensing agreement to Swedish Mint, supplying machines to Mint; final decision was to manufacture blanks "ready for stamping" at Svenska plant. Mr. Baaken, Director of Norway Mint, asked "what is cost per 1000 of covering red edge; received no answer. Mr. Kageler, Director of Hamburg Mint, asked "how many covered blanks per year?" - Answer: 180 million 1 Krona Blanks [800 tons]. Mr. Plumaille, of Paris Mint, asked "what are tolerances in evaluating blanks? Answer: Plus or minus 10% on cladding thickness; and 1% on over-all-thickness; i. e. 5% on cladding thickness each side.

We then visited the plant and saw the edge processing equipment [see later process description, and photographs]. Briefly, the equipment consisted of (A) a "blank inspector" which rejected cut blanks which were bent, partial blanks, or over-diameter, under-diameter, over-gauge, under-gauge, and (B) a ten-blank automatic edge-covering machine. This consisted of a vibratory rotating feeding bowl which singulated two streams of blanks after turning the track 90 degrees down a curved gravity track, so that each stream of non-rolling blanks feed the five banks composing that side of the equipment. Each bank, or miniature turret lathe, received the singulated blanks vertically down. A trap releases the lower blank into a centering cradle. An air-operated chuck tightens the blank against the rotating lathe spindle. A cutting tool advances against the core, and removes the edge of the core to pre-determined depth. A second tool advances against the edge of the blank, closing the cladding edges together over the edge of the blank. The air-operated chuck releases the blank vertically downward into a discharge chute. Turnings removal by vacuum. The operation cycle is two seconds; a 10 bank machine produces five blanks per second, or 300 per minute, theoretically. The machine's physical dimensions are 6 feet wide, 9 feet long, say 8 feet overhead clearance required. [see sketch].

[Note: The Swedish 1-Krona material has a core of 3% nickel, 97% copper, and, in comparison with the U. S. pure copper core, is very hard. This means that, in cutting blanks from the Swedish clad material, no smearing of Swedish red core material occurs. In the case of the U. S. material, it will be necessary to incorporate another station on each of the 10 lathes, which will remove a small amount of metal from the entire edge of the blank, thus eliminating any smeared copper. This will become the first tooling operation to be performed, and thus precede the removal of core metal and subsequent closing up of the edges.]

Thursday, May 28

Met with Claissou, Holm, Remning. Discussed capacity of 10 bank machine:
Theoret: $5/\text{sec} + 300/\text{min} = 18,000/\text{hr} = 144,000/\text{shift} \times 250 \text{ shifts} = 35,000,000/1$
shift year.

Note: Later, practical estimate: $100,000/\text{shift} \times 250 \text{ shifts} = 25,000,000/\text{shift}$
year, 2 shift year = 50,000,000.

Discussed entire Svenska 1 Krona process, as follows:

1. Before bonding, the 3 strip components, each 12" wide, 11 feet long, are assembled into a package $\frac{1}{2}$ inch thick and tack welded on edge of ends.

2. The package is cold bonded in a single pass, 70% reduction, in an enormous 4 - high rolling mill. Bonded strip is welded up into "big coils" for finish rolling cold. Finished strip is slit into two $5\frac{1}{4}$ " widths.

3. Strip cut into 5 foot lengths for blanking.

4. Strip advances through blanking press via "back and forth gripper" transfer mechanism, not feed rolls. Mist Lubrication; air and oil.

Note: Blanking pattern leaves wide web; poor conversion.

5. Blanks riddled to remove cut-outs. Blanks barred-tumbled in metal barrel, with beech or birch sawdust, to dry off oil and to de-burr.

6. Blanks fed by scoop into hopper on inspector machine, previously described.

7. Blanks fed by scoop into edging machine.

Note: 3 employees required to load, unload, make minor adjustments, release feed jams, and inspect material in process, on equipment 6 and 7.

8. Blanks annealed in atmosphere-sealed cannisters, protected atmosphere, $1\frac{1}{2}$ hrs. to get up to 600°C ; 4 hrs. at 600°C ; $1\frac{1}{2}$ hrs. to cool. I. e. 7 hr. anneal cycle. [Compare Mint - which is 20 minutes].

9. Annealed blanks then upset, conventional equipment.

I had brought with me (50) dollar size blanks, and (50) half dollar size blanks of current standard wt; these were left at Svenska for further experiment on copper removal only; they were of no use in producing "edge-covered" standard blanks, i. e. - wrong wt. and dimensions for the purpose.

I had also brought a number of special dollar and half dollar cut blanks, previously cut at Philadelphia Mint per Mr. Macellaro's calculations; these were processed at Svenska and returned to the Bureau. In addition, Svenska had done some experimental work.

From this processing, the following proposed data sheet information evolved as recommended by Svenska:

DATA SHEET / PER REMNING /

<u>Dollar</u>	<u>Weight</u>		<u>Diameter</u>		<u>Thickness</u>	
	<u>Grams</u>	<u>Grains</u>	<u>MM</u>	<u>Inches</u>	<u>MM</u>	<u>Inches</u>
Cut Blank	23.94	369.44	38.90	1.531	2.26	.089
Metal Removed	1.26	19.44	-	-	-	-
Blank after Covering	22.68	350.00	38.40	1.511	2.26	.089
before upset			38.35	1.509+	-	-
Blank after upset	22.68	350.00	37.59	1.480	2.64	.104
<u>Half Dollar</u>						
Cut Blank	12.00	185.18	31.00	1.220	1.78	.070
Metal Removed	.66	10.18	-	-	-	-
Blank after Covering						
before upset	11.34	175.00	30.58	1.204	1.78	.070
Blank after upset	11.34	175.00	30.12	1.186	2.03	.080

Friday, May 29

This meeting was attended by Mr. Jonasson, of the home office. Others were Granstrom and Karlson.

Mr. Jonasson recalled that Svenska had evolved the first prototype for Sweden in about 5 months, May-Sept. 1968, but it didn't work too well - took over a year to work out the bugs; still far from perfect; they plan to build a second machine (replacement) for the Swedish job.

We received U. S. needs. Based on capacity of equipment = 100,000 per shift = 50 million = 2 shift yr. Assuming annual requirement for 100 million dollar size, and 100 million half dollar size, it appears to be a "four machine requirement" problem, using 10 blanks. All machines to be capable of shifting to either of the two denominations. Capable of removing smear, removing core copper, closing edge. Equipment for U. S. Mint would have to be shop-erected and tested at Svenska. For the testing, would require a one-time order to produce at least 20 tons of blanks of each denomination, as Svenska. Said their melting equipment could produce a low-phosphorus core copper, .008% min, .015% max. P. Or, blanks could be supplied by U. S. Two to three months for design, 6 to 8 months to fabricate - say delivery in 9 months to one year.

I asked Jonasson to give me a budget estimate of what it would cost the U. S. for 1, 2 or 4 machines. He said he would have to discuss it with the Board of Directors. I told him the Director of the Mint needed information quickly; he had mentioned July 1 as earliest date. On this basis, he agreed to have his top management make such an estimate by letter to Director within a few weeks.

By letter from Svenska Metallverken of June 12, 1970, signed by Mr. Sven-Ake Dahl, the company tentatively offered equipment as follows, assuming a 1 year operation of 500 shifts:

- A. To process 100 million dollar coin blanks in 2 shifts - \$300,000
- B. To process 100 million half dollar coin blanks in 2 shifts - \$300,000

The equipment would consist of two blank selecting units, and two 20-blank edgers, for a total of \$600,000.

Assuming the 2 shift year operation contemplated, the royalty on 100 million \$ -200,000 and on 100 million half \$ - 200,000.

In substance, equipment cost - \$600,000
Recurring annual royalty - \$400,000

Utility requirements for said equipment are: Power 110 V AC single phase plus - 220 Volt AC three phase.

Air at 100 P.S.I.

TREASURY DEPARTMENT
BUREAU OF THE MINT

VISIT TO EUROPEAN MINTS AND MANUFACTURING PLANTS

Report of visit to European Mints and manufacturing plants, and attendance at meetings of Mint Directors and Bankers, by Frederick W. Tate, Deputy Director of the Mint, and Philip B. Neisser, Technical Consultant to the Director, during the period from May 21 through June 17, 1970.

PURPOSE OF THE VISIT

Some years ago, Directors of the West European Mints formed a semi-official organization known as the Mint Directors Conference (MDC), which holds meetings every second year. The purpose of these conferences is to review operations in other coin manufacturing plants; to exchange technical information on production processes; and to keep up-to-date on the newest and most advanced types of coinage equipment. Representatives of the United States Mint were invited by the President of the Conference to attend the 1970 meeting in Scandinavia -- in Norway, Sweden, and Finland, from May 21 through 29, 1970.

The Bank for International Settlements in Basle, Switzerland, planned a meeting of Central Bankers and Mint Directors on June 15 and 16, to discuss the misuse of low value foreign coins in automatic vending machines. This was a followup to a previous initial meeting on this subject held in October of 1969, attended by Central Bankers only. The Federal Reserve Bank of New York was requested to attend the meeting, and by letter dated March 10, 1970 invited representatives from the United States Mint to participate in the discussions at Basle.

The time between the two conferences was spent visiting other European Mints, and manufacturing plants with operations related to those in the United States Mints, and to discuss production and related technical problems of interest to the Mint. Particular attention was given to technical developments in melting, casting and rolling, and to other improvements in manufacturing processes which could be utilized in improving the efficiency of operation in the United States Mints, and also in connection with a new Mint for Denver which is now in the planning process.

European Mints and Manufacturing Plants Visited

The Mint Directors Conference in Scandinavia included visits to the Mints in Norway, Sweden and Finland. A complete listing of mints and manufacturing plants visited during the entire trip is given below:

<u>Mint or Plant Visited</u>	<u>Location</u>	<u>Date of Visit</u>
Den Kongelige Mynt	Kongsberg, Norway	May 21
Kungliga Mynt	Stockholm, Sweden	May 25
Svenska Metallverken Plant	Finspang, Sweden	May 27
Outokumpu Oy Plant	Helsinki, Finland	May 28
Suomen Rahapaja Mint	Helsinki, Finland	May 29
Den Kongelige Mynt	Copenhagen, Denmark	June 1
Svenska Metallverken Plant	Zutphen, The Netherlands	June 1
The Netherlands State Mint	Utrecht, The Netherlands	June 2
Monnaie Royale de Belgique	Bruxelles, Belgium	June 3
Thin-cast (VDM Suby) Plant	Altena, West Germany	June 4
VDM Brass Plant	Altena, West Germany	June 4

<u>Mint or Plant Visited</u>	<u>Location</u>	<u>Date of Visit</u>
Staatliche Munze (Mint)	Stuttgart, West Germany	June 5
Schuler Press Plant	Goeppingen, West Germany	June 5
Royal Mint, Llantrisant	Wales, England	June 8
Henry Wiggin Plant	Hereford, England	June 9
French Mint	Paris, France	June 10
Swiss Federal Mint	Bern, Switzerland	June 12
Bank for International Settlements	Basle, Switzerland	June 15-16

MINT DIRECTORS CONFERENCE

The organization known as the Mint Directors Conference (MDC) includes representatives from practically all of the West European Mints. Conferences are held every second year at the location of one or more mints which provide an opportunity for the members to visit other mints and review the latest production techniques, and to discuss improved manufacturing processes and related matters. The 1970 Scandinavian Conference included visits to the Mints in Norway, Sweden and Finland. The conference agenda included the following:

- a. Production techniques.
- b. Misuse of foreign coins in automatic vending machines.
- c. Proposal for establishment of a European office for registration of parameters.
- d. Coin metals and coin dimensions.

For the first time in the history of this organization, a formal invitation in the form of a letter from the President of the Conference, dated March 17, 1970, was issued to the United States Mint to send representatives

to attend the Conference. (A number of European Mint Directors attended the Official Opening of the Philadelphia Mint in August of 1969.) A representative of the Czechoslovakian Mint was also invited by the MDC to attend the Conference, particularly for discussing the misuse of Czech coins in German automatic vending machines (he did not attend). Other non-conference members included representatives from Turkey and from the Japanese Mint. The following countries were represented at the Conference:

Austria	Belgium	England	Finland
France	Germany - (four Mints were represented)		Italy
Japan	The Netherlands	Norway	Portugal
Spain	Switzerland	Turkey	U.S.A.

In addition, the following companies, which manufacture coinage equipment or produce coinage materials, were represented:

Crouzet of Paris (build minting equipment) - France

Caverne Consultant Engineers Ltd. - England

Minting Equipment Ltd. - England

Olin Brass - United States

Texas Instruments Inc. of Geneva - (U.S. affiliate)

Vereinigte Deutsche Metallwerke A.G. (coin blanks) - Germany

The visits to the Scandinavian Mints included complete well planned tours of each facility with special emphasis given to new items of equipment or to other developments of interest to the overall group. Special exhibits were prepared for demonstration purposes, and extensive discussions were held regarding coin manufacturing problems. Equipment and production demonstrations were supplemented by motion picture and slide presentations at separate sessions, with extensive question and answer discussions regarding manufacturing techniques and related subjects.

In addition to the visits to the manufacturing plants, several lecture and discussion sessions were held in other locations. Principal lectures included the following:

- a. Lecture - "Modern Mint Machinery" by W. T. Baird, former Superintendent of the Royal Mint, London, now a Mint Consultant.
- b. Lecture - "The New French Five Franc Coin" by Director DeHaye of the Paris Mint, regarding the introduction of a clad Five Franc French coin.
- c. Lecture - "Money Management" by Mr. Fletcher of Texas Instruments, Inc.
- d. Lecture - "Classification of Numismatic Editions" by Director Vogeleer of the Belgian Mint.
- e. Lecture - "Mint Equipment" by T. E. Cooper, representing Minting Equipment Limited of England.

"Question and Answer Sessions" were also held to supplement the lectures on particular subjects. Representatives of individual mints were requested to serve as members of discussion panels to answer questions from the floor on selected subjects. These sessions covered a wide range of subjects including minting equipment, production techniques and coinage alloys. The United States participants served on panels at two of these discussions where attention was given to problems related to adoption of clad coins.

Misuse of foreign coins in automatic vending machines is a growing problem in Europe with the expanded use of vending machines and the greater number of tourists traveling back and forth across the borders of affected countries. Considerable attention was given to this problem. This particular subject had been previously discussed at a Conference of Central Bankers at the Bank for International Settlements in Basle, Switzerland, in

in October of 1969, and it was agreed that further attention would be given to this matter at the BIS Conference in Basle on June 15 and 16, 1970. However, the BIS Conference was purposely delayed until after the MDC meetings in Scandinavia.

Temporary agreement was reached at the MDC Conference that a Registration Office would be established in the Bruxelles Mint in Belgium to review proposed issues of new coins for comparison with other present or planned similar denominations, and to advise of any problems that might arise as a result of adoption of the planned coins. A number of the MDC participants planned to attend the BIS Conference in June, along with Central Bank representatives from their respective countries. A copy of the formal Resolution adopted on this problem is included in the BIS section of this report.

The Annual Report of the Director of the Mint (U.S.A.) includes a section titled, "The World's Monetary Stocks of Gold, Silver, and Coins." This particular section of the report is reprinted as an excerpt and is made available to foreign mints, Central Banks and others who provide information for the report. The Excerpt includes a section on "World Coins" showing the denominations of coins of most countries of the world, with additional information as to weight, diameter and thickness, as well as metallic composition. The President of the Mint Directors Conference gave a short speech praising and thanking the United States for publishing this information and making it available to the other countries, since it is the only source of this type of information which is published on a regular basis. He emphasized that this is the best source of information which is available to the new Registration Office in Belgium to use in connection with the problem of the misuse of low value coins. His remarks on this subject were followed by a burst of applause from the other members of the commission.

Private industrial plants were visited as a part of the agenda for the Mint Directors Conference. These included Svenska Metallverken Plant in Finspang, Sweden, and Outokumpu Oy Plant in Helsinki, Finland. The former plant was of particular interest to the MDC members since coinage strip and blanks for the Swedish Mint are manufactured at this plant. Sweden issues a One Krona coin of clad material about the size of the United States 25¢ piece, and a process has been perfected to cover the red edge of this coin. This operation is performed at the Svenska Metallverken Plant by a unique process developed and patented by them. (Further reference is made to this process later in this report).

The latter private facility visited was Outokumpu Oy in Helsinki, Finland, which is the headquarters of a very extensive mining and refining complex throughout Finland. Principal activities include copper mining and refining, and processing refined materials into various shapes and forms for industrial uses, including coinage purposes. Large quantities are exported, but practically no copper is sold to United States companies.

VISITS TO OTHER MINTS

In addition to the three Scandinavian Mints which were visited during the course of the Mint Directors Conference, arrangements were made in advance for an inspection tour of seven other North European Mints. These mints, and the date of visit of each, are included in the tabulation above. Because of the limited time available between the MDC and BIS Conferences, and the planned visits to other industrial plants, it was necessary to limit the time spent at each facility. However, for the purpose of obtaining and recording all available information which could be used to

improve operations in present United States Mints, or in connection with new procedures which might be adopted in a planned new Mint for Denver, a seven page questionnaire form was designed for the purpose of recording pertinent data at each institution visited. These questionnaires will serve as a permanent record of important data at each mint, and therefore, lengthy specific details describing each institution visited will not be included in this report. However, items of particular interest are outlined below:

A. New Minting Facilities

A number of countries are planning new minting facilities including Sweden, Belgium, England, France and Switzerland. General information on each country follows:

Sweden - The Mint in Sweden is very old, having been constructed and enlarged during the period from 1700 through 1850, and manufacturing space is very limited. A decision has been made to build a mint in an underdeveloped and economically depressed location approximately 200 miles north of Stockholm. Planning for the new facility contemplates the possibility that the manufacture of blanks by Svenska Metallverken Plant may be continued, with the new mint designed for limited melting, casting and rolling facilities. If that concept is adopted, the manufacturing process would be primarily limited to the receipt of blanks and stamping them into finished coins, with the usual related manufacturing and control procedures.

Belgium - The Belgian Mint is about 100 years old and outmoded, and a site has been selected for a new mint in the City of Bruxelles. We visited the site of the new mint with the Mint Director and he showed us plans which are underway for the new facility. New Philadelphia Mint plans were used in

designing and planning the new facility. It is planned to construct a complete manufacturing facility, with all operations performed in the new mint. However, pure nickel blanks for the new 10 Franc coin will be purchased. A continuous casting plant is planned similar to one which has been installed in the Mint in Finland, which was observed during the MDC visit to that plant.

England - A new mint has been partially constructed in Llantrisant, England, which is in a depressed economic region in Wales. The new mint is on a 30 acre site, and buildings have already been constructed where coinage blanks are received and processed into finished coins. Plans are underway to construct additional buildings for melting, casting and rolling operations. Strong consideration is being given to a thin-cast method for producing coinage strip by a continuous casting method, with a product approximately 1/2 inch thick, and 8 inches wide. This strip can be cut to any desired length by a flying saw arrangement. Hot rolling under this process is not considered necessary.

France - Plans have been underway for sometime for a new French Mint at Bordeaux, France, and land has been acquired for this purpose. Engineers from the French Mint have visited the United States Mint to discuss new mint plans, and have been given complete detailed plans, specifications and information on the new Mint in Philadelphia. Sufficient progress had not been made to warrant a visit to Bordeaux, but considerable time was spent in the French Mint reviewing the new mint plans and discussing details. The new mint will handle all manufacturing processes from the production of ingots

through the counting and bagging of finished coins. Ingots will be about 16 inches wide, by 4 inches thick and about 16-1/2 feet long requiring hot rolling, plus rundown and finish rolling. It is also planned to process pure nickel.

Switzerland - The Swiss Mint is about 60 years old, and not as old and outmoded as others we saw, but it apparently is in a location that is needed for other purposes. A decision has been made that the present land will be used for other government buildings and the mint must be moved to a new location. A new Mint Director was appointed recently and plans for a new mint are quite complete. It is planned to continue the purchase of blanks as it is not considered economical to manufacture the small quantities required. Consideration is also being given to printing currency, which is now purchased, and a minting and printing complex may be combined at one location.

B. Mint Automation

England - The most outstanding example of automated minting equipment in all of the countries visited was at the new English Mint constructed at Llantrisant. This new mint was planned and constructed for the purpose of manufacturing a very large number of coins for the changeover to the new coinage system in England. Present operations are on purchased blanks only with automated equipment that handles the blanks through annealing and cleaning, riddling and reviewing, and to and from the stamping presses. Blanks and coins are moved on automatic conveyor belts, with a small bucket and chain arrangement to lift them onto the conveyors. There are five automated lines of 14 stamping presses each in the press room, and the

overall system has greatly reduced the need for manpower -- substantially increasing efficiency and lowering operating costs.

Finland - The outstanding example of melting and casting equipment was observed at the Mint in Helsinki, Finland, where a new small continuous casting system has recently been installed. This system has been in operation for a few months only and they are still working the "bugs" out of it, but it did perform well during the day of our visit. The operation includes a melting furnace from which molten metal is poured into a holding furnace and from which four small ingots about 1/2 inch thick and about 2 inches wide are cast on a continuous basis. The ingots are cut into 18 inch lengths with an automatic cutting arrangement which does not interfere with the casting operation. Longer ingots would be used if the rolling room were larger. Strips are fed by hand into small rolling mills.

Note - A similar continuous casting plant will be installed in the new Belgian Mint. This is comparable to the thin-cast procedure referred to elsewhere in this report, but on a much smaller basis and for a very limited output of coin.

Finland - Another interesting innovation at the Mint was an arrangement to move coin blanks by pneumatic tube from the blanking area on the first floor to the second floor for further processing. These were "1 penni" aluminum blanks weighing 0.45 grams each and the blanks were not marked or scratched. In contrast, several years ago the U.S. Mint contracted with the Lamson Corporation to move 1 cent bronze blanks weighing 3.11 grams each, by pneumatic tube. The blanks were badly nicked and scratched, and the contract was cancelled. (The Mint workers in Finland built their own equipment).

Germany - There are four mints in Germany but the newest and most modern one is at Stuttgart. This is a complete mint which handles all processes from the raw materials to the finished coins, but not for clad coins. The overall mint was very carefully planned and laid out including receiving of raw materials; location of operating rooms; movement of materials through the plant; ventilating, lighting and acoustical features; internal security over values; delivery and safekeeping of finished coins; shipments of coins from the building; and external security measures with practically no guard force. This is an exceptionally well planned and laid out small mint with production capacity of 2 or 300,000,000 coins per year.

C. Stamping Presses

A majority of the presses which are used for stamping coin blanks into finished coin in the European Mints were manufactured by HME, or Schuler. This applies particularly to the newest presses although numerous presses of older vintage with various manufacturers were also noted. All presses observed in all ten mints were stamping one coin at a time only; no dual or quadruple stamping, such as is done in the United States Mints was observed. Press speeds vary with some of the older presses running at 75 to 100 SPM, but the newer presses including HME and Schuler operate at 175-250 SPM, and in some cases up to 300 SPM.

With regard to maintenance of presses, the most favorable comments in regard to newer presses appeared to favor the HME press. The new Schuler Horizontal Press apparently presents more maintenance problems, which are due somewhat to a requirement that the blanks be absolutely perfect before being fed to this press.

A special feature was noted at the Danish Mint in Copenhagen. All presses were connected to a single lubricating system which is operated automatically, taking care of all presses on a continual basis. In addition, a control panel is located in the office of the press-room supervisor, and he can look at the panel and see how fast each press is operating, or if a press is stopped for any reason the control panel so indicates.

D. Reviewing Operations

All of the European Mints visited pay a great deal of attention to the necessity for reviewing both blanks and finished coins. In some mints all blanks and all coins are reviewed -- most of this is accomplished by passing the coins over a moving belt which provides for reviewing both sides. Some interesting equipment was observed in operation riddling blanks, catching bent blanks, and picking out defective pieces in various types of feeding arrangements. One example, if an offsize blank was fed to a coining press, the press would stop automatically before stamping the blank.

No electronic reviewing equipment such as we have ordered from American Machine & Foundry Company to review finished coins was observed. However some unique equipment items were noted which should be reviewed for possible use in our Mints; this will be done as time permits.

E. New Coinage Systems

A common problem discussed with several of the European Mints relates to "reverse seigniorage." This refers to a situation in a number of countries where the government is losing money on the smaller denominations of coins since it costs more to manufacture certain coins than they are worth

when put into circulation. In some countries this applies to more than one denomination. We were not informed of any situation where an appropriation was obtained to cover the loss on coinage of any particular denomination; instead, the general approach taken was that the loss of seigniorage on one or more of the lower denominations was offset by a sufficient amount of seigniorage on other coins to result in a net seigniorage on the overall coinage output.

A number of Coinage Commissions or Committees have been established in various countries to study the overall problem of coin denominations, with particular reference to the problem of low value coins, and to consider appropriate changes in the coinage systems. Proposed solutions which are receiving attention include:

- (a) Discontinue one or two of the smallest coins since their purchasing power is too limited to justify continued use of these denominations;
- (b) Change the size of the next larger denominations to smaller sizes, but of the same alloy;
- (c) Issue other coins of higher value; and
- (d) Consider other less expensive metals for the smaller coins.

F. Appropriation Problems

Practically all mints visited operate on a yearly budget under the supervision of the Treasury Department or the Central Bank. Most prepare a budget just a few months before the beginning of the fiscal year (as compared with our 12 to 15 month advance budget preparation), and have

current information available as to manufacturing costs and coinage demands. In some cases the coinage estimates are prepared by the Central Bank or Treasury; in other cases the mint prepares or assists in the preparation of the estimate.

At every mint where we raised this question, the Mint Director has no trouble in obtaining approval to exceed his budget. In other words, if the demand for coins is greater than was provided for in the budget, he can obtain supplemental funds on very short notice and either increase his staff or go on an overtime basis. Most Mint Directors didn't understand what a personnel ceiling meant, but in some instances they have been faced with a severe problem in hiring workers because of a labor shortage -- competent employees just aren't available.

G. Other Information

Additional information on each individual mint is included in the questionnaires which were prepared in connection with the visit to each institution.

VISIT TO PRIVATE INDUSTRIAL PLANTS

As indicated in the listing of mints or plants visited, a number of plants were visited which had operations related to the production of coins. A brief description of the operations of most importance to the United States Mint follows:

A. Manufacture of Blanks

The Svenska plant at Finspang, Sweden, and the VDM plant at Altena, West Germany, melt, cast and roll coinage alloys and manufacture coinage blanks for use at a number of mints. No coinage operations are conducted

at either of these plants. Both plants have a cladding operation somewhat similar to the one being installed in the new Philadelphia Mint, and produce clad blanks which are shipped to mints in many locations.

B. Melting Thin-Cast Strip

The VDM subsidiary thin-cast plant at Altena, West Germany, and the Henry Wiggin Plant at Hereford, England, were visited to observe a "thin-cast" procedure in operation. Unfortunately, neither plant was in actual operation during our visit, but we did inspect the equipment used for this operation. Extensive discussions were held with operating officials at each plant regarding the feasibility of using this equipment for coinage materials. The equipment at the Henry Wiggin Plant is currently used to produce blanks for the Mint at Llantrisant, but the strip is hot rolled. Current plans for melting and casting at the new Mint in Llantrisant, England, call for adoption of the thin-cast procedure, but with cold rolling of strip.

It should be noted that consideration was given to the adoption of a thin-cast procedure for the new Philadelphia Mint, but this method had not been perfected at that time and the state of the art had not progressed to a point (about '63 - '64) to justify installing equipment of this type in the new mint. However, for the new Denver Mint, careful consideration should be given to this procedure and another look should be taken at that time.

C. Ring Rolling Process

The Svenska plant in Zutphen, The Netherlands, has developed a new procedure for converting large castings to strip thickness suitable for blanking which they claim is superior to the "thin cast" procedure. This

process is designated as the "ring rolling method." The ring rolling method consists of casting a large quantity of metal into the form of a ring, weighing about 14,000 pounds and having a diameter of 9 feet. After milling and cleaning, the ring is processed on an unusual rolling mill complex which continues to roll it until the strip - still in ring form - reaches a total length of about 800 feet. The ring is then cut and coiled for further processing. Equipment required to handle the expanding ring, and space requirements, are quite complicated and extensive. For additional information on this process, see special report dated July 7, 1970, to Mrs. Brooks from Philip B. Neisser, subject: "Visit to Foreign Plant -- New Process for Melting, Casting, Rolling Brass Strip, Including Coinage Alloys."

D. Covering the Red Edge of Clad Coins

The Svenska Metallverken Plant in Finspang, Sweden (referred to previously in this report), has developed and patented a process for covering the red edge of Swedish coins which are about the size of U.S. 25¢ pieces.

The Swedish One Krona coin is a clad coin with a cladding of 75-25 copper-nickel clad on a core of 97-3 copper-nickel. To avoid the red edge such as appears on United States 25¢ and 10¢ pieces, Svenska has constructed equipment to conceal the red edge. In a 10 station automatic machine, each blank is handled individually, and a sufficient amount of red edge core material is removed with a sharp cutting tool. The remaining uncut portion of the blank edge is then folded over in a subsequent milling or upsetting type of operation, successfully hiding the copper

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colored core. For further details, see special report on this subject dated July 7, 1970, by Philip B. Neisser, "Report on Project: Covering Red Edge."

Negotiations have been undertaken with Svenska for the manufacture of similar equipment for the United States, which could be used to cover the red edge of our cupro-nickel dollar and half dollar denominations when these are authorized by legislation. Initial costs quoted for necessary equipment and royalty fees were considered too high, but these items are still under consideration (see letter from Svenska dated June 12, 1970, and our reply dated July 24, 1970).

BANK FOR INTERNATIONAL SETTLEMENTS CONFERENCE

A Conference was held at the Bank for International Settlements in Basle, Switzerland, on June 15 and 16, 1970, to give attention to the misuse of lower value coins and discs in automatic vending machines. This was the second BIS Conference on this subject. The first meeting was held in October of 1968 and was attended by representatives of Central Banks only, with no representatives from mints present. At that meeting it was determined that a second meeting should be held with representatives from Central Banks and from Mints in attendance.

The following countries were represented at the BIS Conference in June 1970:

Belgium	Japan
England	The Netherlands
France	Sweden
Germany, Federal Republic of	Switzerland
Italy	U.S.A.

The agenda for the conference included the following items:

1. Introductory remarks by the Chairman.
2. The magnitude in each country of the fraudulent use of coins and discs in vending and other slot machines in relation to the total turnover of such machines.
3. The measures being taken in each country to prevent the fraudulent use of coins and objects resembling coins, including the legal bases for combating abuses in this field.
4. Setting up of an international registration office on the lines indicated in the letter dated 5th August 1969 from the Deutsche Bundesbank.
5. Proposals for the establishment of a permanent secretariat if it is considered that some sort of international cooperation in this field would be desirable.
6. Any other questions.

Representatives of England, Switzerland and the United States had prepared papers in advance on Items 2 and 3 of the agenda; these papers were reproduced and made available to all representatives. Our submission which was based on a cross-country analysis of the problem including reports from New York, Philadelphia, Denver, and San Francisco, with a special report covering the entire country submitted by the National Automatic Merchandising Association (NAMA). Our report is available in the files for reference purposes.

document which is the only one of its kind available was referred to as the best possible working tool for the Coin Register Office in carrying out its duties under the new Resolution.

A separate report prepared by Mr. Marcus A. Harris, Senior Vice President of the Federal Reserve Bank of New York, who represented the Federal Reserve Bank at the BIS Conference, is available in the files for reference purposes; also, a report from the General Manager of the BIS which was forwarded through the FRB of New York.

CONCLUSION

The above report necessarily provides highlights only of the visits to ten mints and seven industrial plants. However, the itinerary provided an opportunity to inspect ten North European Mints which are undoubtedly among the best minting facilities in the world. The extensive observation and reviews of production methods, as well as discussions of technological developments including planning for new mints, provide adequate assurance that the technology in the United States Mints is not lagging behind that of other countries. The outstanding difference in production techniques, aside from the volume of coins produced, was in relation to coin stamping operations, i.e., single vs. dual or quadruple striking.

The increasing coin demand in this country during recent years, together with the limited available space in the three United States Mints, resulted in the development and successful utilization, by Mint Technicians, of four-strike coining presses. By contrast, however, coin stamping operations in all European Mints visited were limited to single striking only. In connection with production planning for a new Denver Mint, and with the expectation of unlimited space for coinage operations, a careful study will be made

of the economics of equipping that mint with four-strike presses as compared with single strike operations.

The inspection of private European plants also provided our first look at thin-cast melting equipment. This casting method was considered for the new Philadelphia Mint, but had not been completely developed at that time. For the new Denver Mint, careful attention will be given to the possibility of utilizing this type of equipment.

Considerable attention has been given during recent years to covering the red edge of our clad coins, and several American companies have submitted various proposals to accomplish this objective. The visit to Sweden provided an opportunity to witness a successful procedure for covering the red edge. We have already received proposals from Svenska, following the visit to their plant, for the construction of equipment to cover the red edge of our large denominations and royalty fees, but the prices were considered too far out of line. However, negotiations are continuing with the Swedish firm for more reasonable prices.

Follow-up actions, which have already been taken on other matters are detailed below:

1. In connection with the Engraver's need for additional reducing lathe equipment, we have requested the Gudel-Lienhard Company of Bienne, Switzerland, to submit a cost proposal for their equipment.
2. We have arranged with the Schuler Press Company of Goeppingen, West Germany, for the acquisition of two horizontal high-speed coining presses on a "test purpose" basis.

3. Negotiations are in process to acquire from the Cincinnati Milling Company one HME Dial Feed Coining Press, also on a test basis.

Other possibilities for improvements in our manufacturing operations, although of a more minor nature, will be pursued as time permits.

F W Tate

Frederick W. Tate
Deputy Director of the Mint

July 30, 1970

Foreign money & mfg. Bonds &c.

fundatoria 'Coratoria' Platte River Lake Isle

4-18-72

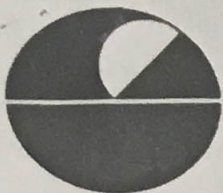
Frank Rhea:

We have located a copy of the soil tests for the Mint site. You can keep this copy.

I will be out of town Wednesday & Thursday, but will call you on Friday to chat about overhead.

Best regards,
Neil M Lagan

J.N.McLAGAN



WOODWARD-CLYDE & ASSOCIATES
CONSULTING SOIL ENGINEERS AND GEOLOGISTS
2909 WEST SEVENTH AVENUE
DENVER, COLORADO 80204
TELEPHONE 222-9434

February 10, 1969

Subject: Feasibility Subsoil Investigations
and Consultation, Left Bank Project,
Valley Highway to Platte River,
17th Avenue to Seventh Street,
Denver, Colorado
Job No. 11773

W. C. Muchow & Associates
3707 Cherry Creek North Drive
Denver, Colorado 80209

Attn: Mr. W. C. Muchow

Gentlemen:

As requested, we have completed a feasibility subsoil investigation at the subject site. The purpose of the study was to enable us to provide our opinions on (1) the feasibility of the site for the proposed construction from the soil and ground water viewpoints, (2) the most appropriate types of foundations for the planned structures, and (3) the solutions to other potential problems from the soil or ground water standpoints. Factual data gathered during our investigations are summarized on Figures 1 and 2 attached. Our opinions, based on the results of our investigations and our experience in the area, are summarized below.

We believe the site is feasible for the proposed construction.

We understand that current planning envisions several commercial structures, 1 to 12 stories high. Lower floor levels had not been established at the time of our investigations, but one or more underground levels may be involved for parking and other uses. Structural loads were not available at the time of our investigations, but could range from low to high.

The site is located on the west bank of the South Platte River and is bounded on the west by the Valley Highway, on the south by 17th Avenue and on the north by Seventh Street. The southern 3/4 of the site is occupied by the City and County of Denver, Streets and Highways Department storage facilities and is surfaced with gravel and oil. There are several areas of stockpiled sand and salt in this area and one large, one story, concrete block and metal warehouse and several small, one story, wood frame structures. The northern 1/4 of the site is occupied by single story, wood, brick and metal buildings, as well as two, very old, three story, brick structures and a 100± foot tall, brick smokestack. There are two large areas of stockpiled, dumped fill in this portion of the site. Inspection of the existing structures indicates cracking and structural

damage to the one story structures, while the older, three story structures appear in good condition from the soil and foundation viewpoint.

Subsoils at the site are fairly uniform. Generally, 6 to 14 feet of loose, man-made fill, containing cinders, glass, large chunks of concrete and some trash, are underlain by medium dense, silty, gravelly sand and thence by firm to hard claystone and sandstone bedrock found at depth 13 to 20 feet. In some areas, the upper 2 to 4 feet of claystone have weathered to a stiff clay.

The existing, dumped fill is not, in our opinion, a suitable stratum for support of building foundations. We believe the best type foundation for lightly loaded structures will be conventional spread footings on the natural soils or a combination of the natural soils and controlled, compacted fill. Portions of the existing dumped fill, exclusive of large chunks of concrete and trash, can be used in the construction of controlled fill. We believe that final investigations will indicate that footings on the natural sands may be designed for maximum soil pressures ranging between 2,000 and 4,000 psf and footings on controlled fill for maximum soil pressures of 4,000 to 6,000 psf, depending on the type of soils used to construct the fills.

Straight shaft piers drilled into the bedrock will probably be the most appropriate type foundation for heavy structures. We believe final investigations will indicate that piers should be designed for a maximum end pressure of 20,000 to 60,000 psf, depending upon the depth of penetration, and a maximum side shear of approximately 1/10 the maximum end pressure.

The existing fill is not, in our opinion, suitable for support of floor slabs. Solutions will depend on the lower floor level selected and could involve structural floors supported by the foundation system; removal of the existing fill, replacement with controlled, compacted fill and the use of a slab-on-grade floor; or slab-on-grade floors on the natural soils. The existing fill materials, exclusive of large pieces of concrete, trash and other organic material, can be used in construction of controlled fill.

Free water was found at depth 13 to 25 feet, generally being very close to the current South Platte River level near the river and slightly higher farther from the river. The ground water levels in the Platte River alluvial sands generally respond rapidly to changes in the river level.

Present ground water conditions may be suitable for one level basement construction in the western, higher portion of the site. However, if multi-level basement construction is used, or if single level basement construction is used in the eastern, lower part of the

site, we believe final investigations will indicate the necessity for design of basement slabs for uplift or provision of subsurface drainage, due to the proximity of the Platte River and the existing water level. Dewatering could be required for basement excavations. We have installed slotted pipe in our test holes to enable future water level measurements.

The South Platte River has historically flooded during the late spring and summer months. According to stream flow records, 19 floods have occurred on the South Platte River in the Denver reach since 1844. The flood of 1844 was the largest of record and had an estimated flow in excess of 100,000 cubic feet of water per second. The flood of 1965, which was the second highest of record, had a flow of approximately 40,000 cubic feet of water per second and would have an average flood frequency recurrence interval of approximately once every 200 years. We believe the flood of 1965 had river levels as high, or higher, than those of 1844 because of the large amount of debris, houses and trailers that clogged and restricted stream flow under bridges across the South Platte River. We understand the river level at the site during the 1965 flood was 5193 feet above mean sea level.

Chatfield Dam, a flood control project of the South Platte River, is presently under construction near Waterton, Colorado and is tentatively scheduled for completion some time in 1972. Mount Carbon Dam, which will control flooding on Bear Creek, an upstream tributary of the South Platte River, is under consideration, but has not been authorized for construction.

We believe the river level would again be elevation 5193 if a flood comparable to that of 1965 occurred prior to completion of Chatfield Dam.

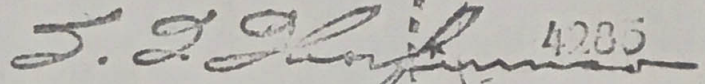
We estimate the maximum water level at the site with Chatfield Dam in operation will be of the order of 5183 feet above mean sea level elevation for a 100 year flood and 5181 for a 50 year flood, assuming debris conditions similar to those which occurred during the 1965 flood. If Mount Carbon Dam is constructed, the river level would be lowered by approximately one additional foot for both 50 and 100 year floods.

Borings were widely spaced to obtain a reasonably accurate, preliminary foundation picture. However, variations in subsoil conditions are known to occur within short distances, particularly with widely spaced, preliminary borings. We recommend that final subsoil investigations be accomplished for the planned structures prior to design to confirm our preliminary conclusions and to enable determination of detailed design criteria.

If we can be of further service in discussing the contents of this report or in accomplishing a final subsoil investigation, please do not hesitate to call on us.

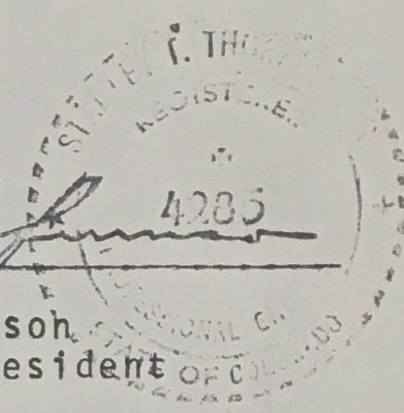
Very truly yours,

By



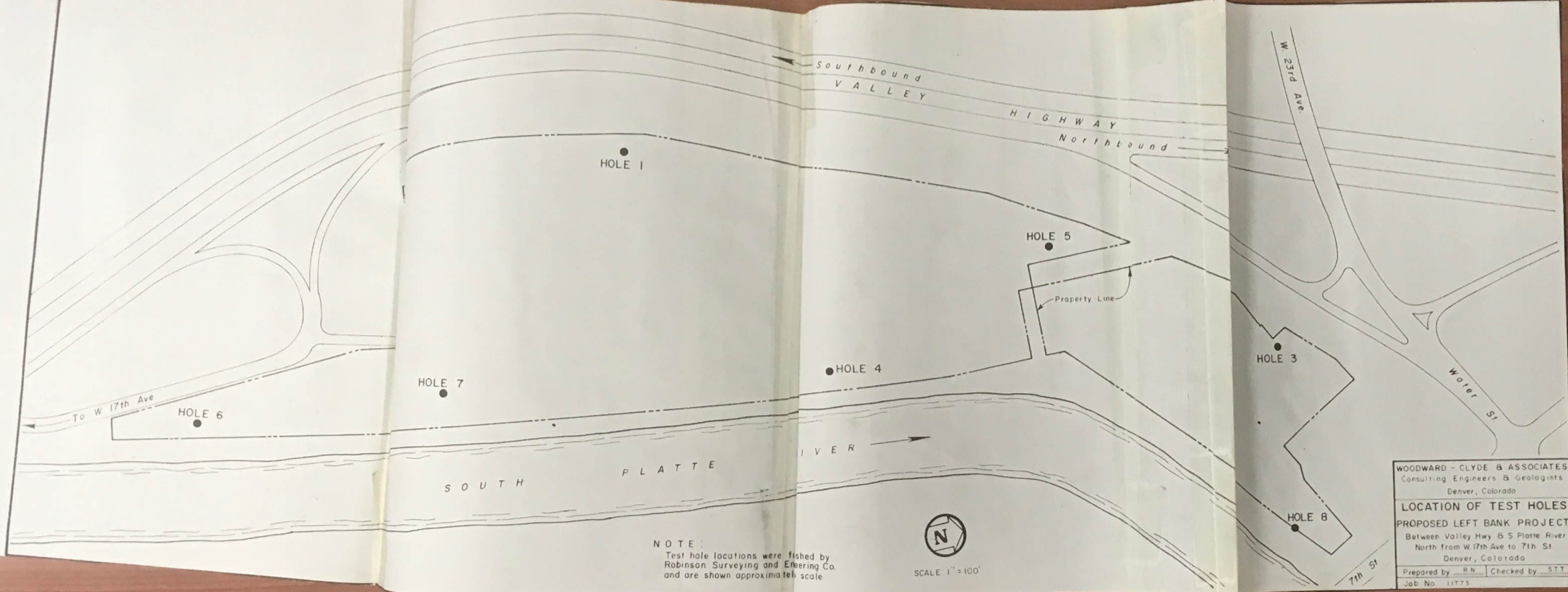
4285

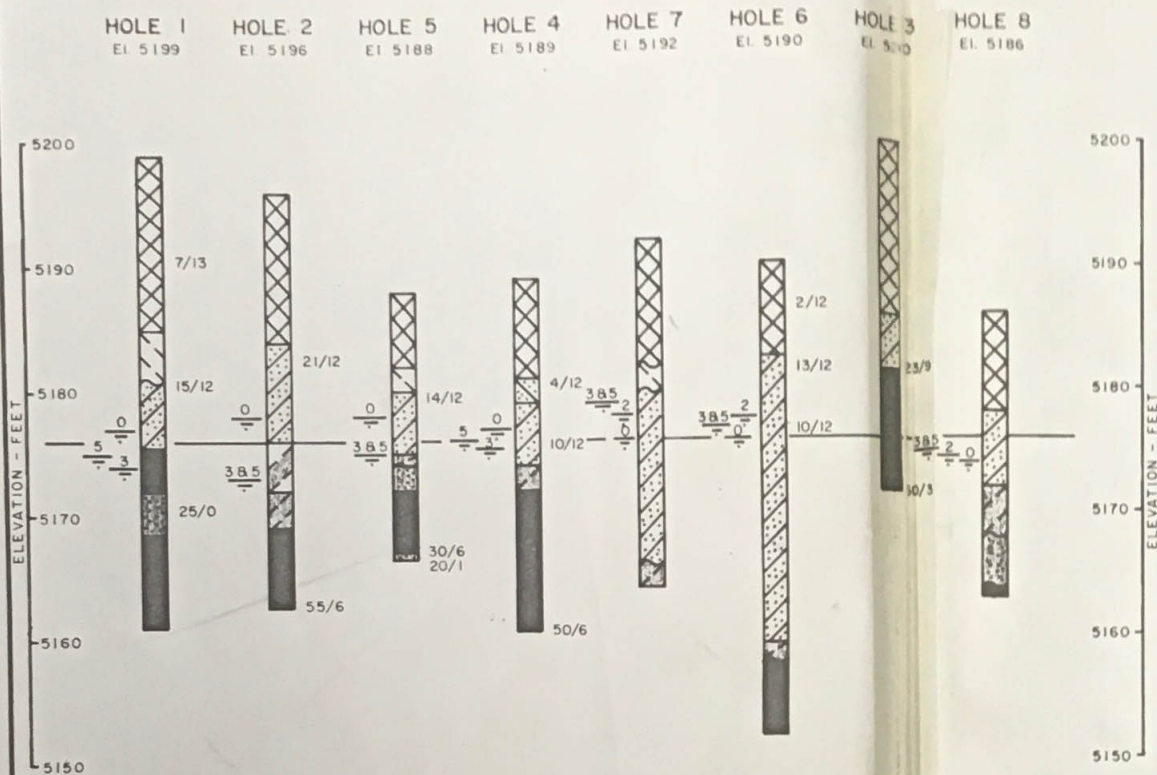
S. T. Thorfinnson
Senior Vice President



CRN:s

(3 copies sent)





LEGEND

- FILL, LOOSE TO SOFT, SAND, CLAY, GRAVEL, CINDERS, GLASS, TIN CANS, MOIST TO WET, GRAY TO BLACK, SOME CONCRETE
- CLAY, SOFT, SILTY, SLIGHTLY SANDY, MOIST, BROWN (CL)
- SAND, LOOSE, SILTY, GRAVELLY, MOIST TO WET, BROWN.
- SAND, MEDIUM DENSE, SILTY, VERY GRAVELLY, MOIST TO WET, BROWN
- CLAY, STIFF, SLIGHTLY SILTY, MOIST, OLIVE (WEATHERED CLAYSTONE)
- CLAYSTONE, FIRM, SLIGHTLY MOIST TO MOIST, OLIVE TO GRAY
- SANDSTONE, HARD, CLAYEY, SLIGHTLY MOIST, GRAY
- CLAYSTONE, MEDIUM HARD TO HARD, SLIGHTLY MOIST, GRAY TO BLUE-GRAY

21/12 INDICATES THAT 21 BLOWS OF A 140-LB. HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE A 2-INCH DIAMETER SAMPLER 12 INCHES.

$\frac{2}{-}$ FREE WATER LEVEL AND NUMBER OF DAYS AFTER DRILLING THAT MEASUREMENT WAS TAKEN.

GRADUAL CHANGE IN MATERIALS. EXACT STRATA CHANGE NOT LOCATED.

WATER LEVEL OF THE SOUTH PLATTE RIVER, FEBRUARY 5, 1969.

NOTES:

1. HOLES WERE DRILLED ON JANUARY 31, 1969 WITH A 4-INCH DIAMETER HELICAL POWER AUGER.
2. SLOTTED 3/4-INCH OD BLACK IRON PIPE WAS INSTALLED IN TEST HOLES 1, 2, 4 AND 5 AND SLOTTED 1-INCH OD PLASTIC PIPE IN TEST HOLES 3, 6, 7 AND 8 TO PERMIT FUTURE WATER LEVEL MEASUREMENTS. ALL PIPES WERE PROVIDED WITH THREADED COVERS.
3. ELEVATIONS ARE APPROXIMATE AND WERE FURNISHED BY ROBINSON SURVEYING & ENGINEERING COMPANY.
4. DRILL LOGS IN THIS REPORT ARE SUBJECT TO LIMITATIONS, EXPLANATIONS AND CONCLUSIONS OF THIS REPORT.

WOODWARD - CLYDE & ASSOCIATES
Consulting Engineers & Geologists
Denver, Colorado

SUMMARY LOGS OF TEST HOLES PROPOSED LEFT BANK PROJECT

Between Valley Hwy. & S. Platte River
North from W. 17th Ave. to 7th St.
Denver, Colorado

Prepared by: RN Checked by: STT

Job No. 11773

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION

Region 8
Denver Federal Center
Denver, Colorado 80225



March 24, 1972

*Subaru
Foundation Contribution
Platte R. Site*

Mr. Frank McDonald
Deputy Director, Bureau of the Mint
The Department of the Treasury
Washington, DC 20220

Dear Mr. McDonald:

As requested on March 22, 1972, a preliminary subsoil investigation was made on March 23, 1972, with the drilling of two test holes at the South Platte Site. Test Hole 1 was drilled 50 feet west of the maintenance building (at the lower level adjacent to the asphalt trucking area) and Test Hole 2 was located 90 feet west and 170 feet north of the same building (in sand and gravel stockpile area).

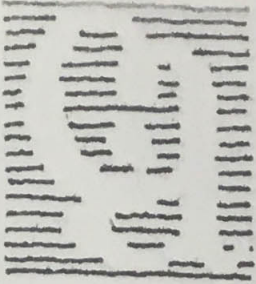
These tests confirmed bedrock at about 20 feet below the surface and revealed 10 to 12 feet of fill, silt, trash and other unsuitable bearing material which was not anticipated at the time the preliminary site investigation report was prepared.

As stated in Chen and Associates, Inc.'s report dated March 23, 1972, this data is based only on field classification of subsoil materials taken from two test holes, drilled approximately 750 feet apart. Complete laboratory testing was not undertaken due to the time required to complete same.

Sincerely,

GREGORY CAVANAGH
Regional Director
Public Buildings Service

Enclosure: Report by Chen and Associates, Inc.
Preliminary Subsoil Investigation



chen and associates, inc.

CONSULTING ENGINEERS



SOIL & FOUNDATION
ENGINEERING

2600 WEST 2nd AVENUE, SUITE 7
1924 EAST FIRST

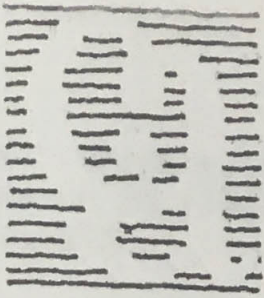
• DENVER, COLORADO 80219 •
• CASPER, WYOMING 82601 •

303/935-4697
307/234-2126

PRELIMINARY SUBSOIL INVESTIGATION
FOR PROPOSED BUILDING TO BE LOCATED
BETWEEN THE VALLEY HIGHWAY AND
PLATTE RIVER NORTH OF 17TH STREET
DENVER, COLORADO

Prepared for:

MR. GREGORY CAVANAGH
REGIONAL DIRECTOR, PUBLIC BUILDING SERVICE
BUILDING 41
DENVER FEDERAL CENTER
DENVER, COLORADO



chen and associates, inc.

CONSULTING ENGINEERS



SOIL & FOUNDATION
ENGINEERING

2600 WEST 2nd AVENUE, SUITE 7
1924 EAST FIRST

• DENVER, COLORADO 80219 •
• CASPER, WYOMING 82601 •

303/935-4697
307/234-2126

March 23, 1972

Subject: Preliminary Subsoil Investigation
for Proposed Building to be Located
Between the Valley Highway and
Platte River North of 17th Street,
Denver, Colorado.

Job No. 7827

Mr. Gregory Cavanagh
Regional Director, Public Building Service
Building 41
Denver Federal Center
Denver, Colorado

Dear Sir:

As requested, we drilled two test holes at locations designated by Mr. David Gess at the subject site. The purpose of the test holes was to determine the very general subsoil conditions and possible foundation alternatives for a commercial type building with heavy loads. Because of the time factor, laboratory testing was not conducted, and our discussion is based on field classification of the subsoils encountered as well as our experience in the area.

Site Conditions: The site lies immediately west of the South Platte River and is presently used as a city maintenance yard. A long narrow building occupies a part of the site, and smaller buildings and demolished buildings occur toward the north end of the site. We assume these buildings are founded on spread footings on the natural sand and gravels. The older portion of the city maintenance building has several cracks in the foundation but in general appears to be in fair condition considering its age.

The ground surface at the site is about 15 feet above the channel of the Platte River. It slopes up gently toward the west away from the river. This site also has a more gentle slope down to the north in the direction of flow of the Platte River. Most of the site lies on the present flood plain and was probably flooded during the 1965 high flow.

It appears that fill may have been placed erratically at many locations across the site. Our investigation was not in enough detail to delineate either the horizontal or vertical extent of these materials.

Subsoil Conditions: The upper subsoils encountered in the borings varied erratically, whereas the lower granular soil and bedrock were fairly uniform. In Test Hole 1, $12\frac{1}{2}$ feet of very loose, sandy fill with a considerable amount of trash overlies medium dense to dense sand and gravel with cobbles which in turn overlies medium hard to hard claystone-sandstone bedrock at depth 22 feet. In Test Hole 2, 6 feet of trash fill overlies 4 feet of soft, wet, organic silt and 8 feet of medium dense sand and gravel which in turn overlies hard claystone-siltstone at depth 18 feet.

Free water was measured at depth 7 to 12 feet. This should be a fairly stabilized water level for this time of year since the soils were quite porous. We would expect the water table would fluctuate directly with the Platte River.

Most Probable Foundation Types: Two foundation systems are feasible at this site. A spread footing type foundation could be founded on the medium dense to dense sands and gravels below the existing fill, or spread footings could be placed on controlled compacted fill if the general site is to be raised. Spread footings on the natural soils could be designed for maximum soil pressures ranging from 3,000 psf to 6,000 psf depending on the uniformity of its relative density across the site. Footings placed on selected granular compacted fill may be designed for approximately 5,000 psf. In either case, all existing fill and soft organic soils should be removed first.

For heavily loaded columns or foundation walls, a straight-shaft pier system would be both feasible and desirable. The pier system has the advantage of requiring only one pier per column and deriving high bearing capacity by penetrating a relatively short depth into bedrock. It would also have the advantage of a negligible amount of settlement. Piers may be designed for a maximum end pressure of 30,000 psf to 50,000 psf with a skin friction of approximately 10% of that value. Because of the granular soils overlying bedrock and the elevation of the water table, pier holes would have to be cased in order to properly clean and dewater them prior to placing concrete.

Because of the loose condition and the content of the existing fill, it would probably have to be removed and replaced with suitable material if floor slabs are to be placed on grade. This would be required to minimize settlement of heavily loaded floor slab areas.

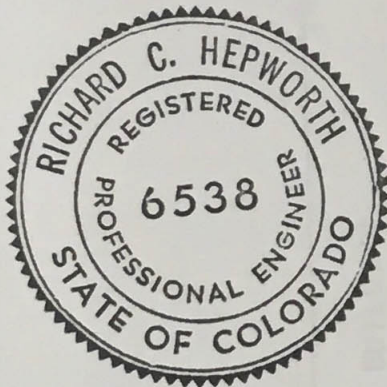
Mr. Gregory Cavanagh
March 23, 1972
Page 3

Additional Investigation: The above discussion is based only on the results of two test holes for a very large site. It is quite likely that varying conditions will be found if detailed drilling is done across the entire site. We would recommend an extensive drilling, laboratory testing and engineering analysis prior to final design and construction.

It has been a pleasure to be of service to you. If we can provide additional information or be of further assistance, please let us know.

Very truly yours,

CHEN AND ASSOCIATES, INC.



RCH/bn
Encls.

By Richard C. Hepworth
Richard C. Hepworth, P. E.



Approximate
Scale: 1" = 100'

90'

170'

EXISTING BUILDING

SOUTH PLATTE RIVER

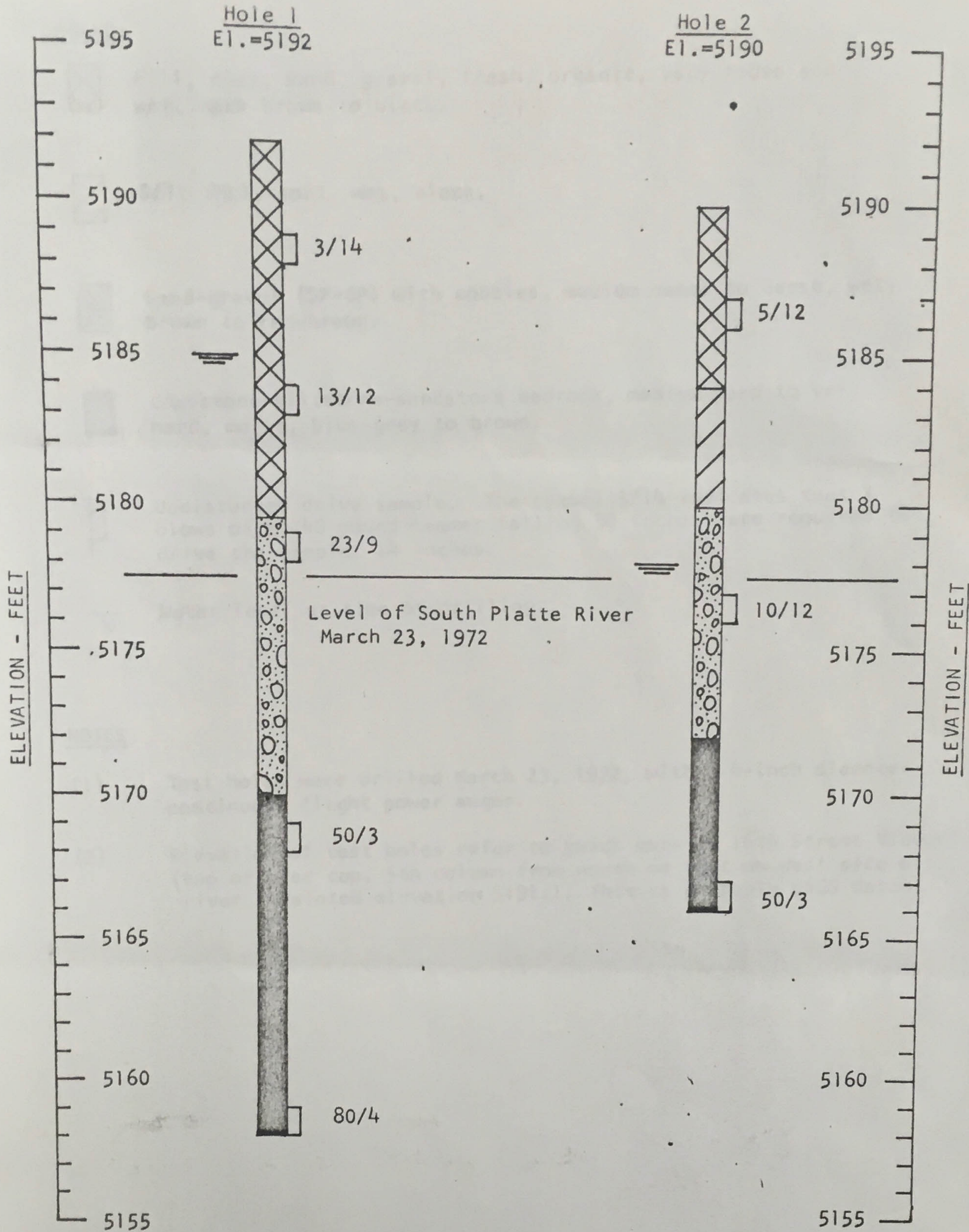
B.M. is top of pier
cap on 16th Street
Viaduct.

Hole 1



50'

Elevation water surface
5177'



LEGEND:



Fill, clay, sand, gravel, trash, organic, very loose and wet, dark brown to black.



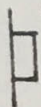
Silt (ML), soft, wet, black.



Sand-gravel (SP-GP) with cobbles, medium dense to dense, wet, brown to red-brown.



Claystone-siltstone-sandstone bedrock, medium hard to very hard, moist, blue-grey to brown.



Undisturbed drive sample. The symbol 3/14 indicates that 3 blows of a 140 pound hammer falling 30 inches were required to drive the sampler 14 inches.



Water level at time of drilling.

NOTES:

- (1) Test holes were drilled March 23, 1972, with a 4-inch diameter continuous flight power auger.
- (2) Elevations of test holes refer to bench mark on 16th Street Viaduct (top of pier cap, 5th column from north on bent on west side of river. Painted elevation 5191.1. This is probably USGS datum)

KAL ZEFF AND ASSOCIATES
CONSULTING SOIL ENGINEERS

847 EAST COLFAX AVENUE

DENVER 18, COLORADO

ALpine 5-0907 ALpine 5-0862

NEW ADDRESS

226 Clayton St.

Denver 6, Colo.

DU 8-6350

SOIL AND FOUNDATION INVESTIGATION
FOR THE PROPOSED KWAL SCIENTIFIC
BUILDING AT 800 WATER STREET
DENVER, COLORADO

Prepared For

Jack Shapiro
c/o American Construction Company
1820 East 16th Avenue
Denver 18, Colorado

Project 791

July 28, 1961

255⁰⁰

11/10 3 1961

SCOPE

This report presents results of a subsoil investigation at the site of the proposed new KWAL Scientific Building at 800 Water Street, Denver, Colorado. Factual data gathered during the field and laboratory work are summarized in Figures 1 and 2 attached. Our conclusions and recommendations, based on the results of our investigations and our experience in the area, are given below. The reasoning behind them is not presented here and will be furnished upon request.

As currently planned, the building is to be one story with 40 kip maximum column loads. It is to be of steel type of construction.

CONCLUSIONS AND RECOMMENDATIONS

Subsoils

Subsoil conditions at the site are fairly uniform. Generally, 7 to 8 feet of loose to compact fill materials overlies medium dense clean sand and gravel. Medium hard to hard blue claystone bedrock was found at depths to 15 feet $\pm$. The fill is not suitable for supporting the building. Water Table was found at depth 8 feet $\pm$.

Building Foundations

Three foundation alternatives are feasible and satisfactory for the proposed building. The choice should be based on comparative cost. We list them in the order of our preference:

(1) Conventional spread footings on compacted structural fill. Footings should be designed for maximum soil pressure of 4,000 psf. The existing fill should be removed and new fill should be placed and compacted to 98% of Proctor Density at optimum moisture content (see appendix). Clean portions of the existing fill may be used in the new fill. This will also solve the slab problem discussed below.

(2) Straight shaft piers drilled at least 3 feet into medium hard bedrock below depth 15 feet. The piers should be designed for maximum end pressure of 40,000 psf and side shear of 4,000 psf.

(3) Spread footings on the sand and gravel below depth 8 feet $\pm$. Footings should be designed for maximum soil pressure of 4,000 psf.

Slab on Ground Construction

The existing fill will adequately support loads not exceeding 50 psf. Some settlement will occur with time due to decay of organic material present in the fill, but this should not be severe. The slab should be properly reinforced and separated from all bearing members.

For floor load over 50 psf, three alternatives are recommended:

- (1) Remove the fill and replace it compacted as discussed above.
- (2) Preload the existing fill prior to construction with a load equal to 125% of the proposed warehouse loading for a period of at least one month. The settlement due to the load should be observed so that rate of movement can be determined. The settlement should stop within two months.
- (3) Provide a 6-8" slab properly reinforced top and bottom and allow the slab to settle due to the proposed loading. After the settlement has taken place re-level by either "mud-jacking" beneath the slab or pouring a new slab on top.

A structural slab would be very costly and is not recommended.

Paving around the building with a good slop (6" in 10') is advisable.

CONSTRUCTION INSPECTION

In any foundation investigation it is necessary to assume that foundation conditions would not vary greatly from those exposed in our exploratory holes. The holes are spaced as closely as is economically feasible in order to reduce the possibility of anomalies. However, anomalies sometimes do occur and for this reason it is advisable that Soil Engineer inspect the exposed foundation excavation or pier hole

drilling during construction.



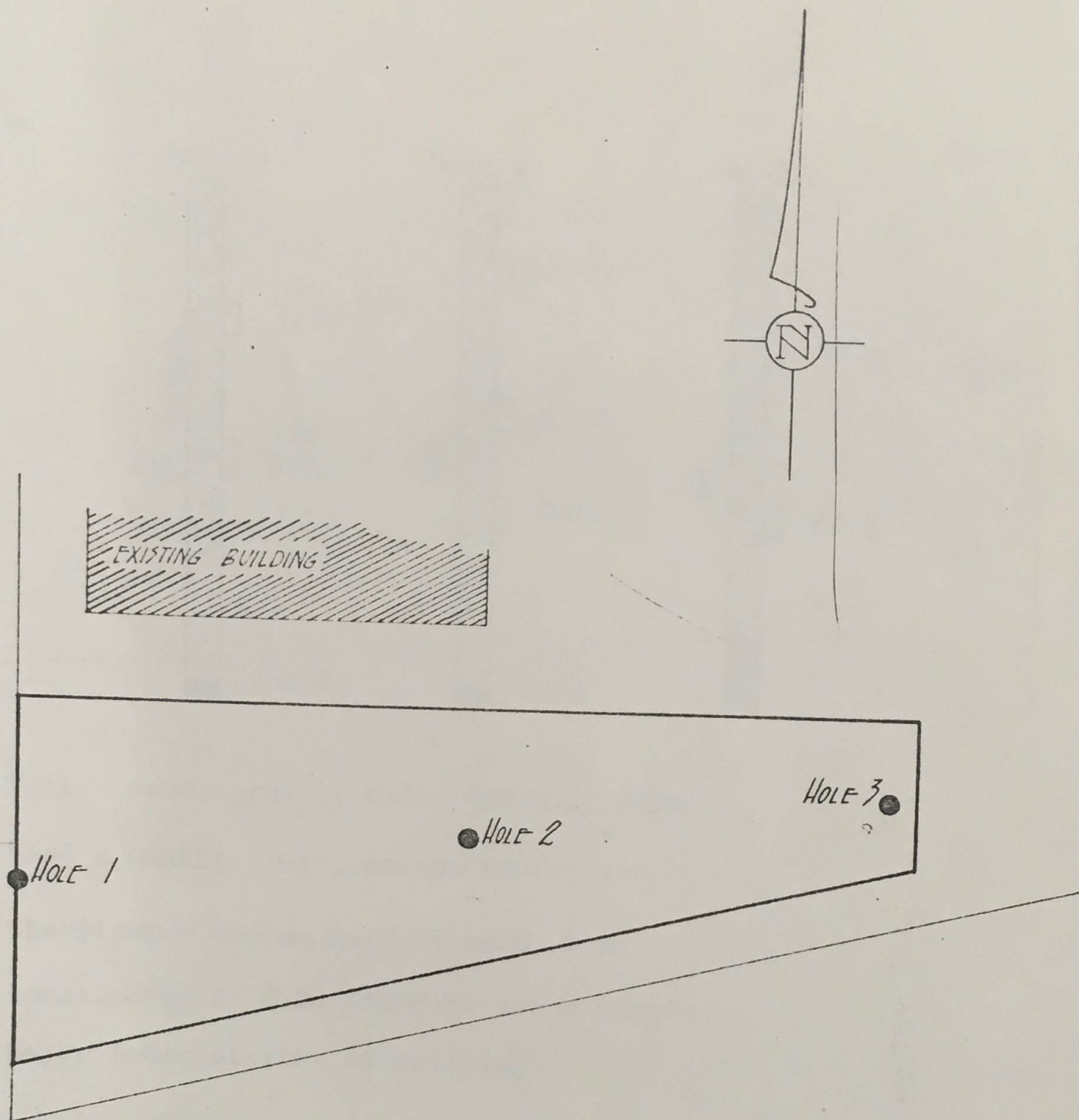
KAL ZEFF AND ASSOCIATES

By Kal Zeff
Kal Zeff, P. E.

KZ:jp

Attachments

3 Copies Sent

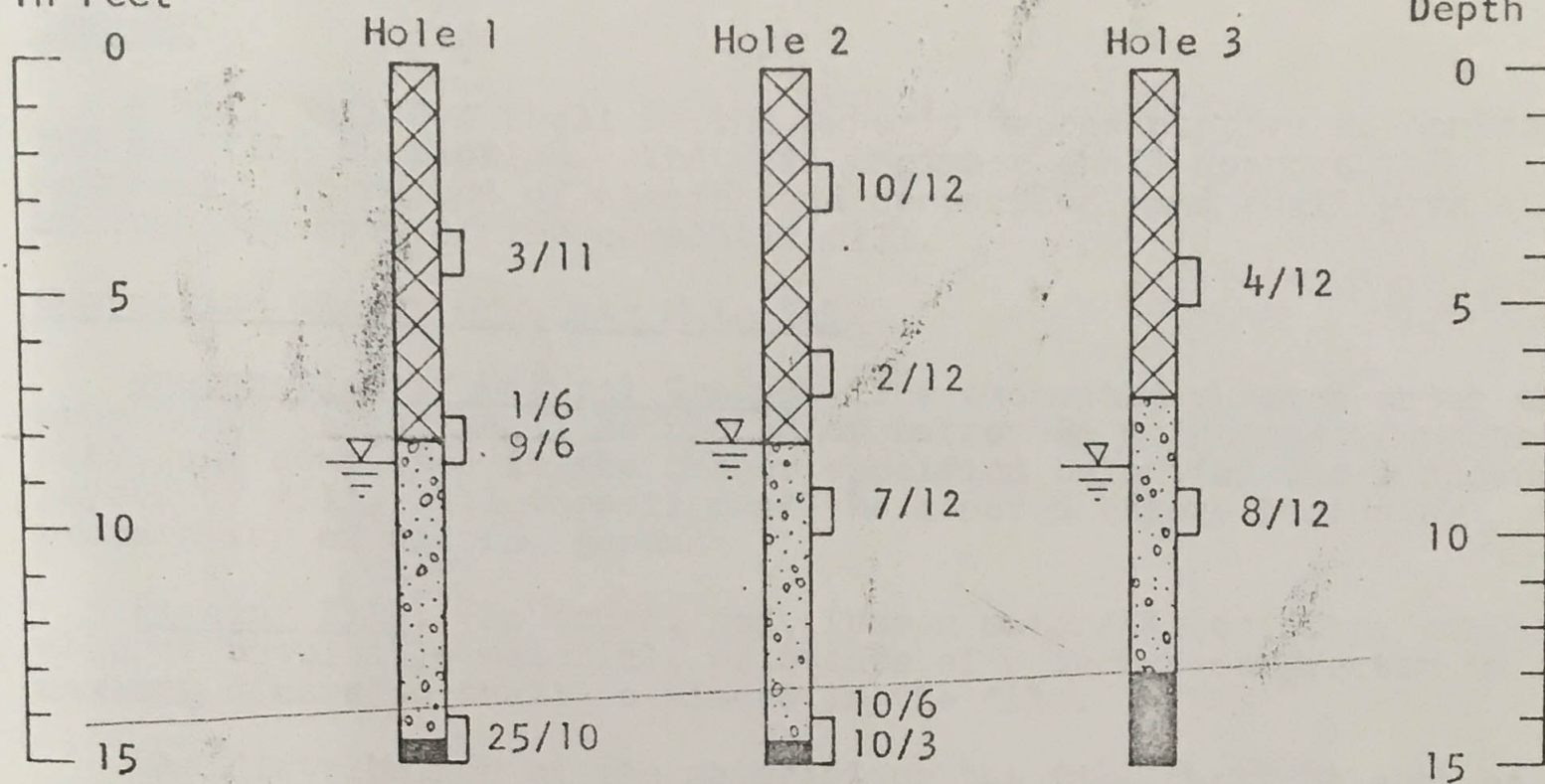


TEST HOLE LOCATION PLAN
SCALE: 1" = 30'

FIGURE 1

Depth in Feet

Depth in Feet



- ☒ FILL - sand, gravel, silt, debris, loose
- ▤ SAND & GRAVEL - wet, medium dense, tan
- CLAYSTONE - medium hard to hard, blue
- └ Location of 2" O.D. standard spoon sample
- ▽ Water Table at time of drilling

Notes:

1. Holes were drilled on July 27, 1961, with a 4" diameter continuous flight power auger.
2. 3/11 indicates that 3 blows of a 140-lb. hammer falling 30" were required to drive the sampler 11".

17'

LOGS OF EXPLORATORY HOLES

Figure 2

APPENDIX

(Suggested Minimum Specifications for Placement of Compacted Fill)

General

A Soil Engineer shall be the Owner's representative to control the backfill compaction. The Soil Engineer shall approve the material, the method of placing and compaction, and shall give a written approval of the completed fill.

Compacting Clayey or Silty Materials

Preparation of Natural Ground. The excavated surface under the area to be filled shall be plowed or harrowed, moistened if necessary, and compacted in the manner specified below for the subsequent layers of fill. All topsoil shall be removed before beginning preparation of natural ground.

Placing Fill. No brush, sod, frozen material, or other perishable or unsuitable material, or stones of 6 inches or greater in maximum dimension shall be placed in the fill.

The distribution of the material on the fill shall be such as to avoid the formation of lenses, or layers of material differing substantially in characteristics from the surrounding material. The materials shall be delivered to the backfill surface at a uniform rate, and in such quantity as to permit a satisfactory construction procedure. Unnecessary concentration of travel tending to cause ruts and uneven compaction shall be avoided. Before placing the successive layer, all ruts and other hollows more than 6 inches in depth shall be regraded and compacted.

After dumping the fill material on the backfill surface, the material shall be spread by approved methods in approximately horizontal layers. These layers shall not be greater than 6 inches in thickness after compaction.

Moisture Control. The material in each layer, while being compacted by rolling, shall contain the amount of moisture required for optimum compaction, as nearly as is practicable, as determined by the Soil Engineer, and the moisture content shall be uniform throughout the layers. The Contractor may be required to add the necessary moisture to the backfill material in the excavation if, in the opinion of the Soil Engineer, it is not possible to obtain uniform moisture content by adding water on the fill surface.

Compaction. When the moisture content and condition of each spread layer is satisfactory, it shall be compacted by a method approved by the Soil Engineer to at least 98% of standard Proctor density. A Proctor test should be performed on each typical fill material and frequent density tests of the fill must be taken. Normally, 8 to 10 passes of a sheepsfoot roller loaded to 4000 pounds per linear foot on a 6-inch soil layer is sufficient to achieve standard Proctor density.

Compacting Cohesionless Free-Draining Materials

Where compacting cohesionless free-draining materials such as sands and gravels, the materials shall be deposited in layers and compacted by treads of a crawler-type tractor, surface or internal vibrators, smooth or pneumatic rollers, hand or power tampers, or by any other means approved by the Soil Engineer. The thickness of the horizontal layers after compaction shall be not more than 6 inches if compaction is performed by tractor treads, surface vibrators or similar equipment, or not more than the penetrating length of the vibrator head if compaction is performed by internal vibrators. The material may be ponded or flooded to aid in the compaction.

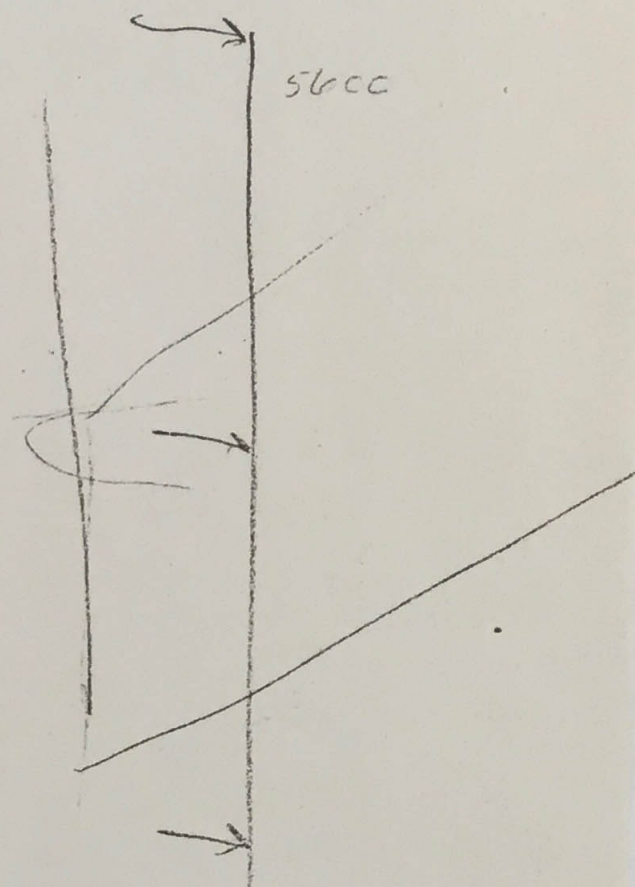
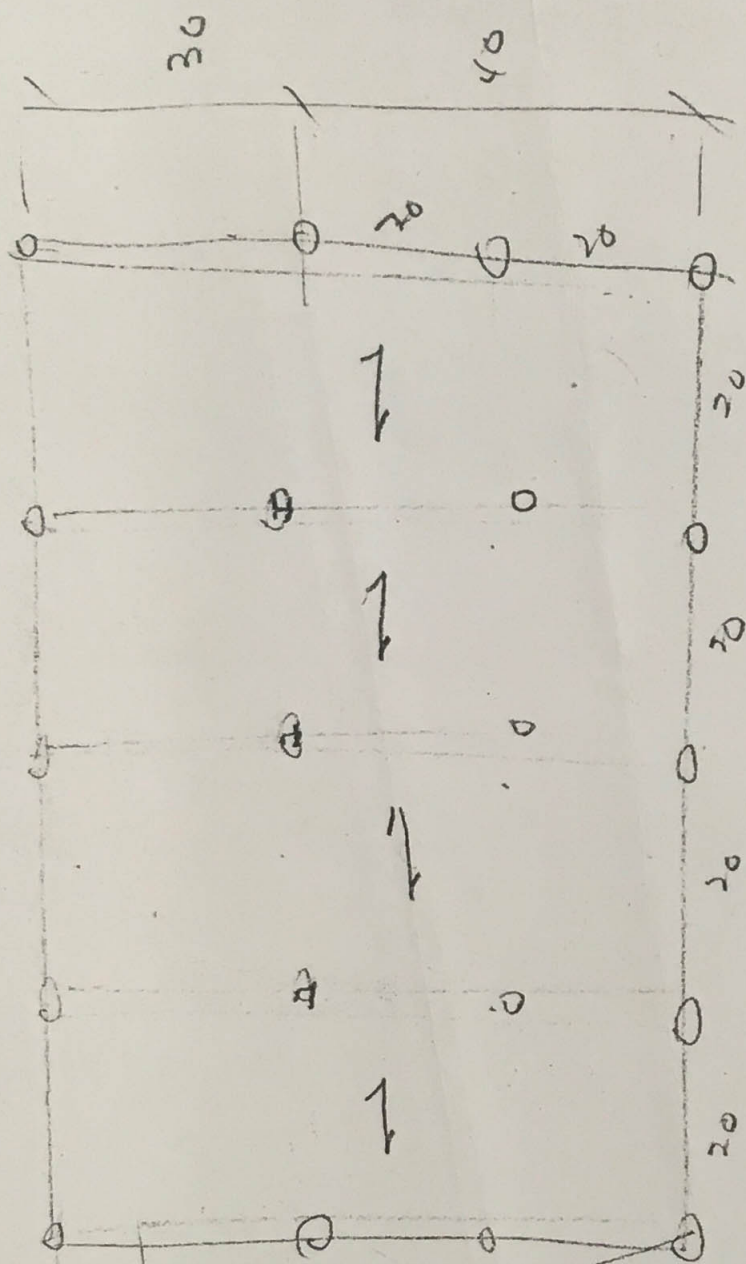
The relative density (dry) of the compacted material shall be not less than 80% as determined by the standard Bureau of Reclamation relative density tests for cohesionless free-draining soils.

The relative density tests will be made by the Soil Engineer. The relative density of a cohesionless free-draining soil, expressed as a percentage, is defined as its state of compactness with respect to the loosest and most compact states at which it can be placed by laboratory procedures. The relative density will be based on the following formula, wherein the maximum density is the highest dry unit weight of the soil, minimum density is the lowest dry unit weight of the soil, and in-place density is the dry unit weight of the soil in place.

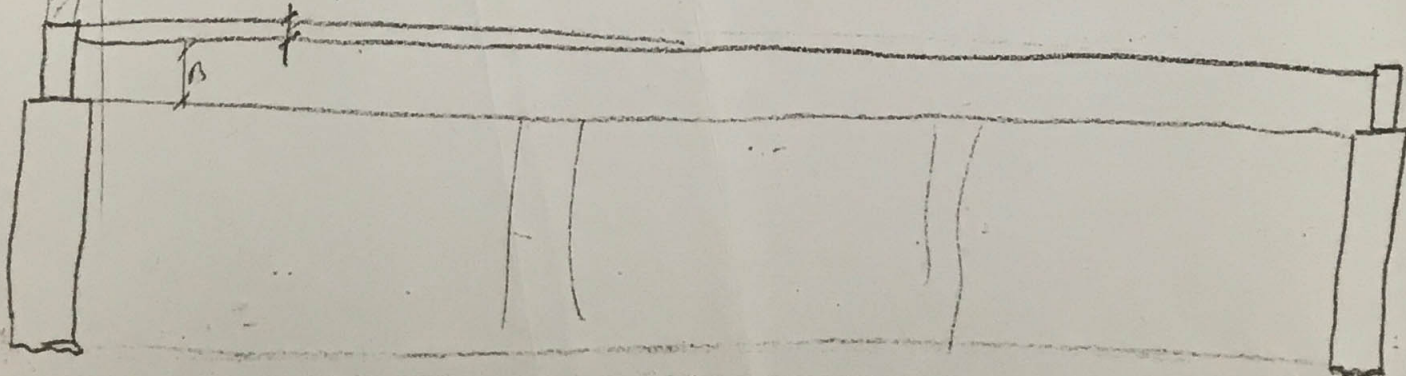
$$\text{Rel. Den. (\%)} = \frac{\text{max. den.} \times (\text{in-place den.} - \text{min. den.})}{\text{in-place den.} \times (\text{max. den.} - \text{min. den.})} \times 100$$

470

200# / ft



10"-12"

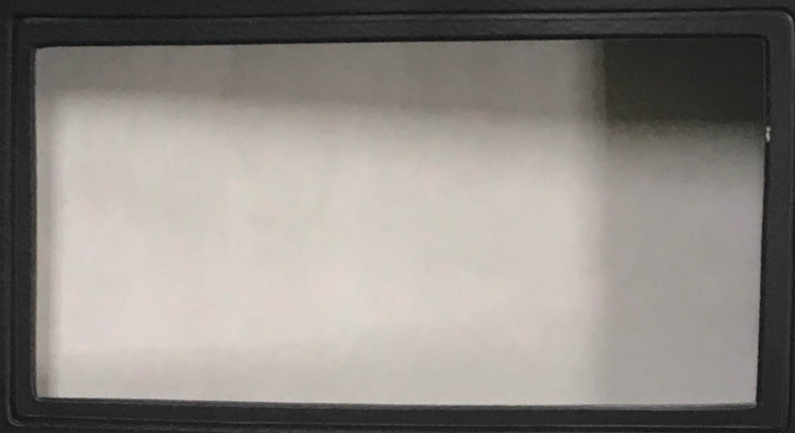


Donald
Director, Bureau of the Mint
Department of the Treasury
Washington, D.C. 20220

Donald:

By Mr. Frank Rhea during his recent visit to
subsoil investigation has been made at the Sou
For your information are two copies of a

CHEN AND ASSOCIATES, INC.
Consulting Soil Engineers
2600 West Second Avenue, Suite 7
Denver, Colorado 80219
303/935-4697



UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION



Region 8

Denver Federal Center
Denver, Colorado 80225

May 9, 1972

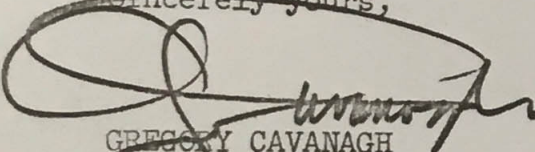
Mr. Frank McDonald
Deputy Director, Bureau of the Mint
The Department of the Treasury
Washington, D.C. 20220

Dear Mr. McDonald:

As requested by Mr. Frank Rhea during his recent visit to this office, additional subsoil investigation has been made at the South Platte Site. Enclosed for your information are two copies of a preliminary subsoil investigation report dated May 8, 1972, prepared by Chen and Associates, Inc., Consulting Engineers.

This report includes complete laboratory analysis of the soils encountered at rather wide spread test holes; however, the findings should be fairly indicative of the subsoil conditions at the site.

Sincerely yours,


GREGORY CAVANAGH
Regional Director
Public Buildings Service - 8P

2 Enclosures

15



chen and associates, inc.
CONSULTING ENGINEERS



SOIL & FOUNDATION
ENGINEERING

2600 WEST 2nd AVENUE, SUITE 7
1924 EAST FIRST

DENVER, COLORADO 80219
CASPER, WYOMING 82601

303/935-4697
307/234-2126

PRELIMINARY SUBSOIL INVESTIGATION
FOR THE PROPOSED DENVER MINT SITE
17TH AVENUE AND PLATTE RIVER
DENVER, COLORADO

Prepared for:

DESIGN AND CONSTRUCTION DIVISION
GENERAL SERVICES ADMINISTRATION
DENVER FEDERAL CENTER
DENVER, COLORADO

Job No. 7956

May 8, 1972

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CONCLUSIONS

The subsoil conditions across the proposed site are quite erratic. The most erratic portion is the varying depths of man-made fill consisting of building debris, asphalt chunks, and trash up to a depth of about 17 feet in the city owned portion of the property. In the present residential area, natural soils overlies bedrock. Claystone and sandstone bedrock occurs at a fairly uniform depth across most of the site. Depth to bedrock varied from 10 to 24 feet below the existing ground surface.

Three types of foundations are feasible in the area. One would be high capacity straight-shaft piers drilled into the claystone bedrock. In part of the site low pressure spread footings placed on the upper natural soils are feasible. A third alternative would consist of placing spread footings on compacted structural fill. The trash fill would require removal and replacement for proper support of important loads or paved areas.

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SCOPE

This report presents the results of a preliminary subsoil investigation on approximately 33 acres lying along the South Platte River which is proposed for the new Denver Mint site. The site lies between 17th Avenue and 10th Street on the left bank of the South Platte River in the City of Denver, Colorado. The report presents the general subsoil conditions, most feasible foundation types, treatment of the existing fill, water table conditions, and other design and construction details which should be considered for preliminary planning. A previous letter reporting the results of two test holes was sent on March 23, 1972 (our Job No. 7827).

PROPOSED CONSTRUCTION

We understand that a heavy commercial type building is proposed for construction on this site. The building will have moderate to heavy column loadings and will have heavy machinery inside. We also understand that moderate to heavy floor loadings are being considered. Other details of construction are not known at this time.

SITE CONDITIONS

At the time of our investigation the site was occupied with shop and industrial type buildings, residences, and stockpiled materials. The area can be roughly divided into three parcels consisting of the City of Denver maintenance yard, an industrial area, and a residential area. The City of Denver and the industrial properties lie adjacent to the channel of the South Platte River. This area is fairly flat and about 10 to 15 feet above the channel of the river. The ground surface slopes up gently toward

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the west away from the river. The site also has a general slope down to the north in the direction of flow of the Platte River. In the vicinity of the industrial buildings there are several demolished buildings with the foundations remaining in place.

It appears that the area adjacent to the Platte River has been extensively filled with a variety of trash and debris. Judging from the straight lines of the river and the high banks further west, we assume the channel has been changed and shaped to its present alignment. The area just west of Interstate Highway 25 is an old meander of the river and is about level or lower than this site.

The residential area occupies a hillside which is up to 30 feet higher than the adjacent flood plain area of the Platte River. This probably represents the original river bank. Most of the residences in this area are very old, and we assume most are founded on spread footings. Several vacant lots occur indicating residences have been demolished in the area.

SUBSOIL CONDITIONS

Subsoil conditions were investigated by drilling 9 holes in addition to the 2 we had drilled previously. We understand that the borings for the Jourgensen Paint Company building have been obtained and these will be used to supplement the information presented here.

Subsoil conditions along the south and lower part of the site adjacent to the Platte River were very erratic due to the varying depths of man-made fill. Below the man-made fill the soils were fairly uniform and consisted of medium dense to dense sand and gravel with some cobble overlying medium hard to very hard claystone-siltstone-sandstone bedrock at depths

10 to 24 feet. Subsoil conditions in the residential area vary considerably from those near the Platte River. They consist of a thin layer of topsoil and 4 to 12 feet of medium stiff to stiff, interlayered clayey sand and sandy clay overlying 3 feet of medium dense sand which in turn overlies the typical bedrock in the area.

Of most concern on the site is the man-made fill which occurs near the lower portion of the site. We assume that this fill material was not placed under controlled conditions and that it's compaction is very erratic. The fill material consists of trash, bricks, pieces of asphalt, organic material, and sand and gravel. Undisturbed samples were tested which indicated a very low, dry density. Samples of this material were also tested to illustrate its consolidation characteristics. These tests are shown on Figs. 6 through 8 and indicate a very high consolidation under light loadings. In addition to the trash fill, our borings also indicated a small amount of sandy and gravelly clay fill toward the north end of the city property and this probably underlies the industrial property. Fig. 4 shows contours on equal depth of fill.

Underlying the trash fill at the city property there was a 2 to 4 foot layer of very soft, organic silt. It has been our experience that this material will also have a high consolidation under loading.

The upper subsoils in the residential area consist of low density fine grained sands and clays. Laboratory testing indicate these materials will consolidate under loading and when wetted.

Swell-Consolidation tests performed on the samples of the claystone bedrock indicate that it possesses a moderate to high swell potential.

These tests are shown on Figs. 10 and 12 through 14. These tests also indicate that the bedrock is capable of supporting high unit pressures with a small amount of deflection. Fig. 5 shows contours on equal depth to bedrock.

Free water was measured at the time of drilling and eight days after drilling. In the lower part of the site, the level of free water is fairly constant at an elevation of approximately 5177. This corresponds to a depth of 7 to 23 feet below the present ground surface. The ground water table rises toward the west on the high side of the site and varies from 15 feet to 20 feet below the ground surface. At the lower part of the site, where the porous sands and gravels occur, we would expect that the free water level would fluctuate directly with the level of water in the Platte River.

FOUNDATION TYPES

Three types of foundation systems are feasible at this site. One of these would be low pressure spread footings on the upper natural soils for the higher portion of the site and another would be straight-shaft piers drilled into the bedrock throughout the site. The upper trash and man-made fill is not suitable to support foundations of any type. This material possesses organic trash which has unpredictable properties. A third foundation alternative would be to remove the upper trash fill and replace it with compacted structural fill and use this material to support spread footings of moderate pressure. We are of the opinion that the existing fill should be removed and replaced if any important floor slabs or structures are planned in that area. Thus, this alternative would be feasible for consideration.

As discussed in our previous letter of March 23, 1972, we believe that straight-shaft piers will be the most suitable type foundation for heavily loaded columns or foundation walls. The pier system has the advantage of requiring only one pier per column and capable of at high bearing capacity. The total load carrying capacity of the single pier can be varied widely by varying the diameter or depth of penetration of the pier. The pier system would undergo a very small amount of settlement. Since the bedrock at this site is very competent, fairly high design pressures can be used for straight-shaft piers. We believe that end pressures on the order of 30,000 psf to 50,000 psf with a skin friction of approximately 10% of that value can be used. The high water table and the granular soils overlying bedrock will require that all pier holes, at least in the lower end of the site, be cased and dewatered prior to pouring concrete.

In the higher portions of the site which is presently occupied by residences, low pressure spread footings are feasible. The upper soils in this area consist of loose to medium dense or medium stiff sand and clays. These soils will consolidate under loading and when wetted. Relatively low pressures must be used for spread footings on this material. Spread footings on the order of 1,000 psf to 2,000 psf would be feasible for this area.

An excellent foundation alternative would be to place spread footings on compacted structural fill replacing the trash fill at the site. In our opinion, the trash fill is not suitable to support foundations, floor slabs, or important paved areas outside of the building. An imported granular soil resting on top of the existing sand and gravel at the site would provide a very stable foundation for spread footings. Spread footings

placed on fill compacted to at least 100% standard density could be designed for a maximum soil pressure of around 5,000 psf to 6,000 psf.

EXISTING FILL

As discussed under "Subsoil Conditions", the existing fill at the site is quite erratic in content and compaction. In our opinion, this material is not suitable to support any type of foundation or floor slab. Consequently, the removal and replacement of this material must be considered. In addition to the trash fill there is a layer of soft, organic silt which occurs overlying the sand and gravel stratum. Since this material would consolidate excessively under loading, we believe it should also be removed. The removal and replacement of fill at the site would be a major economic consideration. Some of the existing fill could be reused but, in general, most of it is not suitable for reuse. A selective type of excavating and backfilling process could be established wherein some of the existing material could be reused outside the building area and a selected granular, nonexpansive imported fill placed in the building areas. Compaction of the imported fill must be carefully controlled in order to provide a stable fill which will not settle under loading and with time. It appears that excavation can be conducted for the most part in the dry. Although the water content of some of the upper fill is very moist, in general the water table lies below the bottom of fill and soft organic soils.

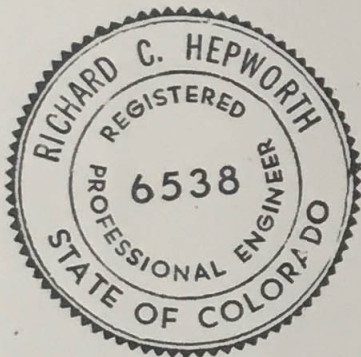
ADDITIONAL INVESTIGATION

We believe the test holes drilled to date indicate a fairly reasonable picture of the subsoil conditions. They also outline the general problem

areas such as the trash fill which must be considered during the planning stages. We recommend that additional investigations be performed to provide specific recommendations based on the type of building, location, and other details yet to be determined. Careful engineering and analysis of the site is required because of the extensive trash fill and to properly analyze the bearing characteristics of bedrock if this system is used.

We would be pleased to provide additional information or be of further service to you if desired.

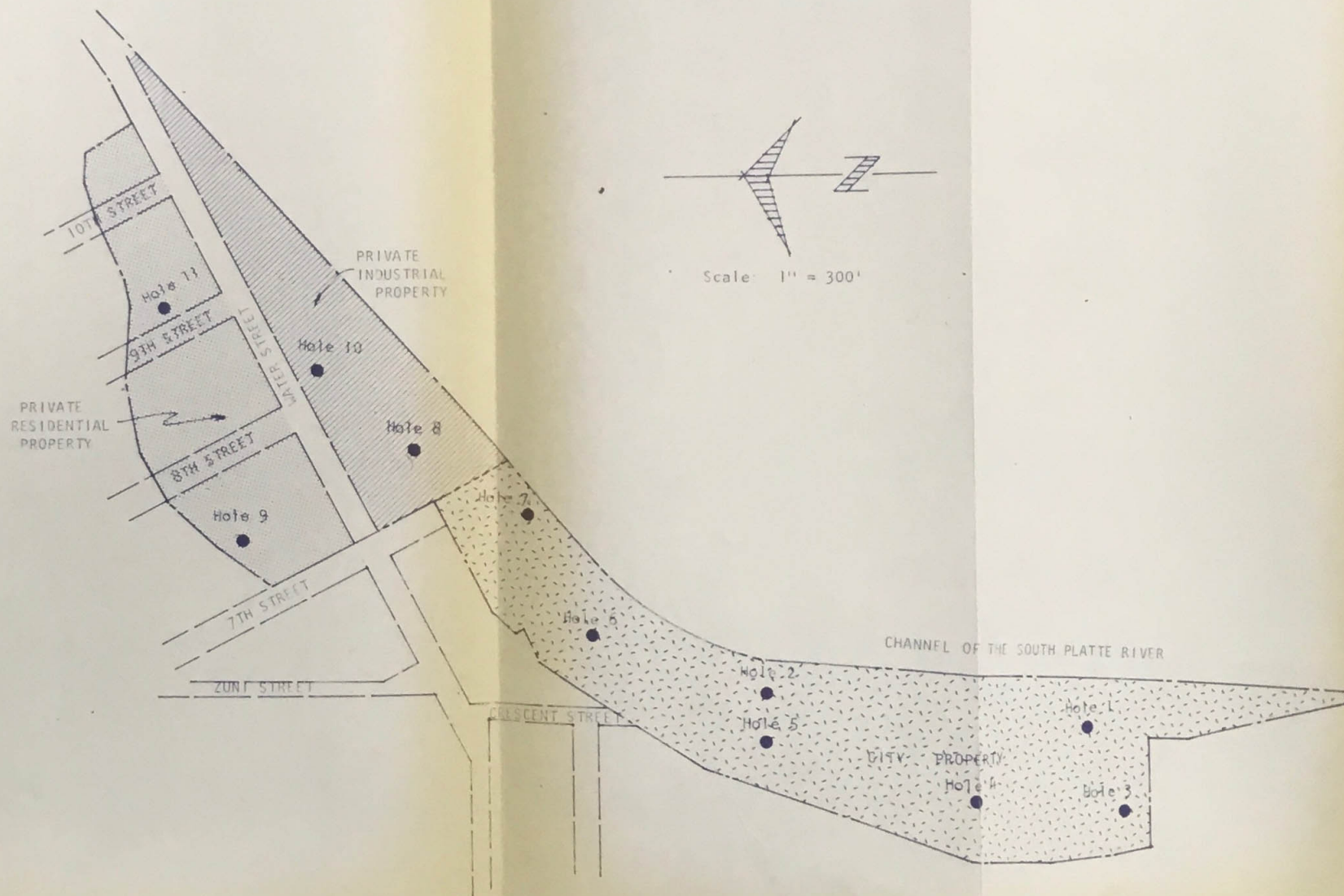
CHEN AND ASSOCIATES, INC.

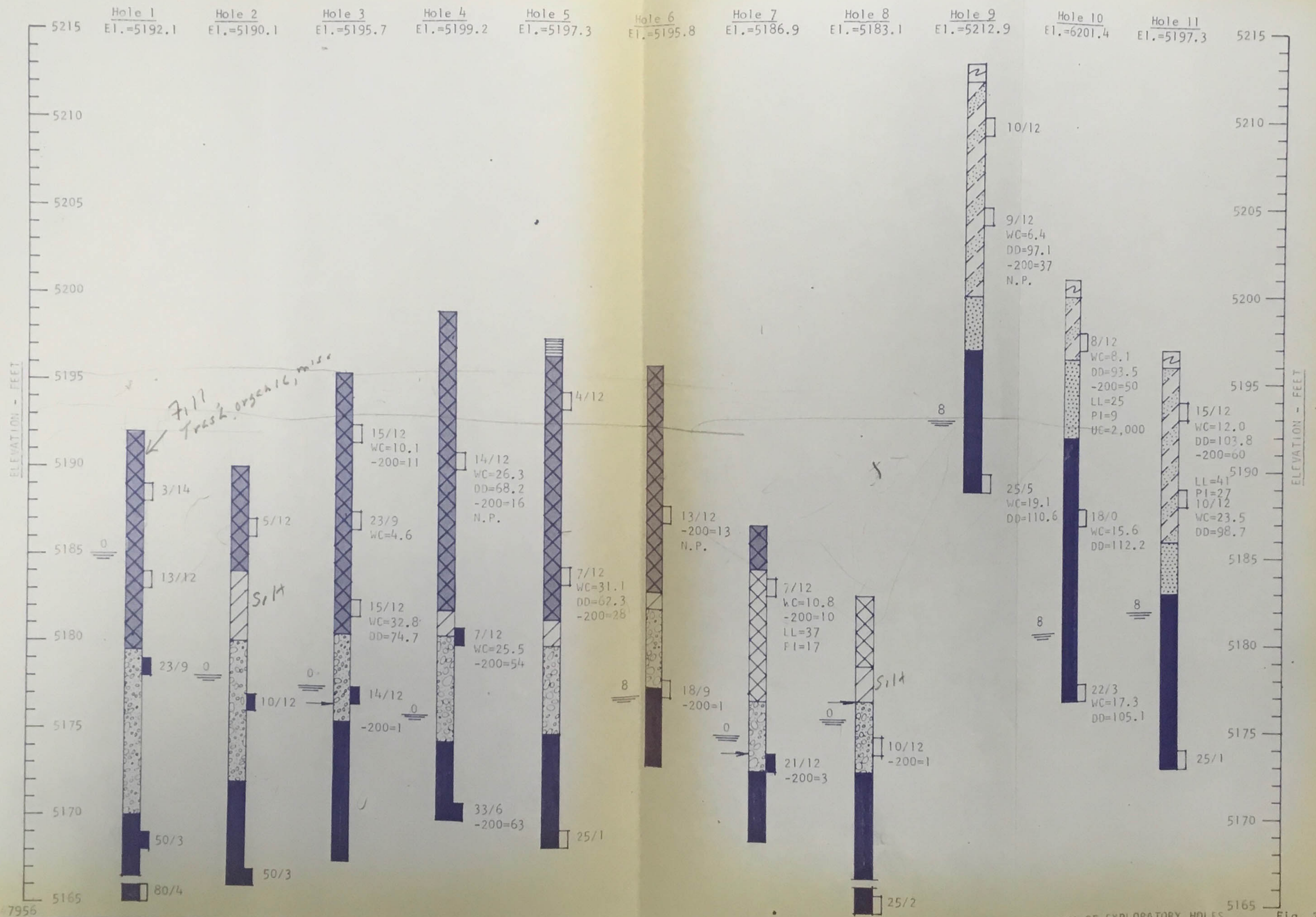


By *Richard C. Hepworth*
Richard C. Hepworth, P. E.

Reviewed By *Fu Hua Chen*
Fu Hua Chen, P. E.

RCH/dlr





LOGS OF EXPLORATORY HOLES 5165 — Fig. 2

LEGEND:



Asphalt pavement and base course.



Topsoil, sandy clay, dark brown, moist.



Fill, trash, organic, numerous bricks, pieces of asphalt, very loose and wet, dark brown to black.



Fill, sandy to gravelly, clay, loose to medium dense, brown and moist.



Silt (ML), soft, wet and black.



Sand (SP), occasional gravel, medium dense, moist, brown.



Sand, clayey to clay, sandy (SC-CL), interlayered, medium stiff to stiff, calcareous, porous structure, moist, brown.



Sand and Gravel (SP-GP), with numerous cobbles, medium dense to dense, wet, brown to red-brown.



Claystone-Siltstone-Sandstone Bedrock, medium hard to hard, moist, blue-grey to brown.



Undisturbed drive sample. The symbol 3/14 indicates that 3 blows of a 140 pound hammer falling 30 inches were required to drive the sampler 14 inches.



Indicates sample obtained with a 2 inch outside diameter standard split spoon sampler.



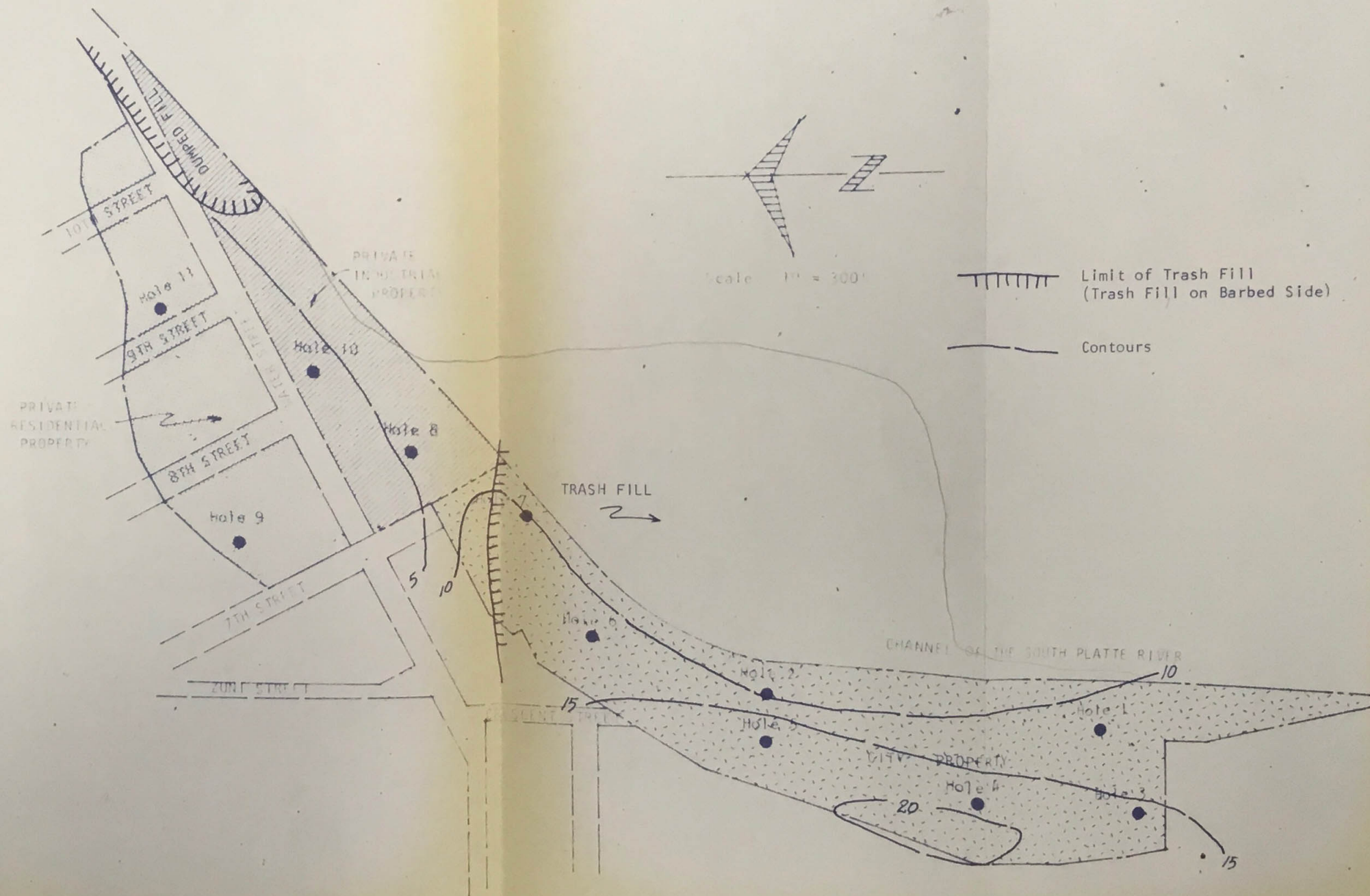
Indicates depth at which test hole caved during drilling.

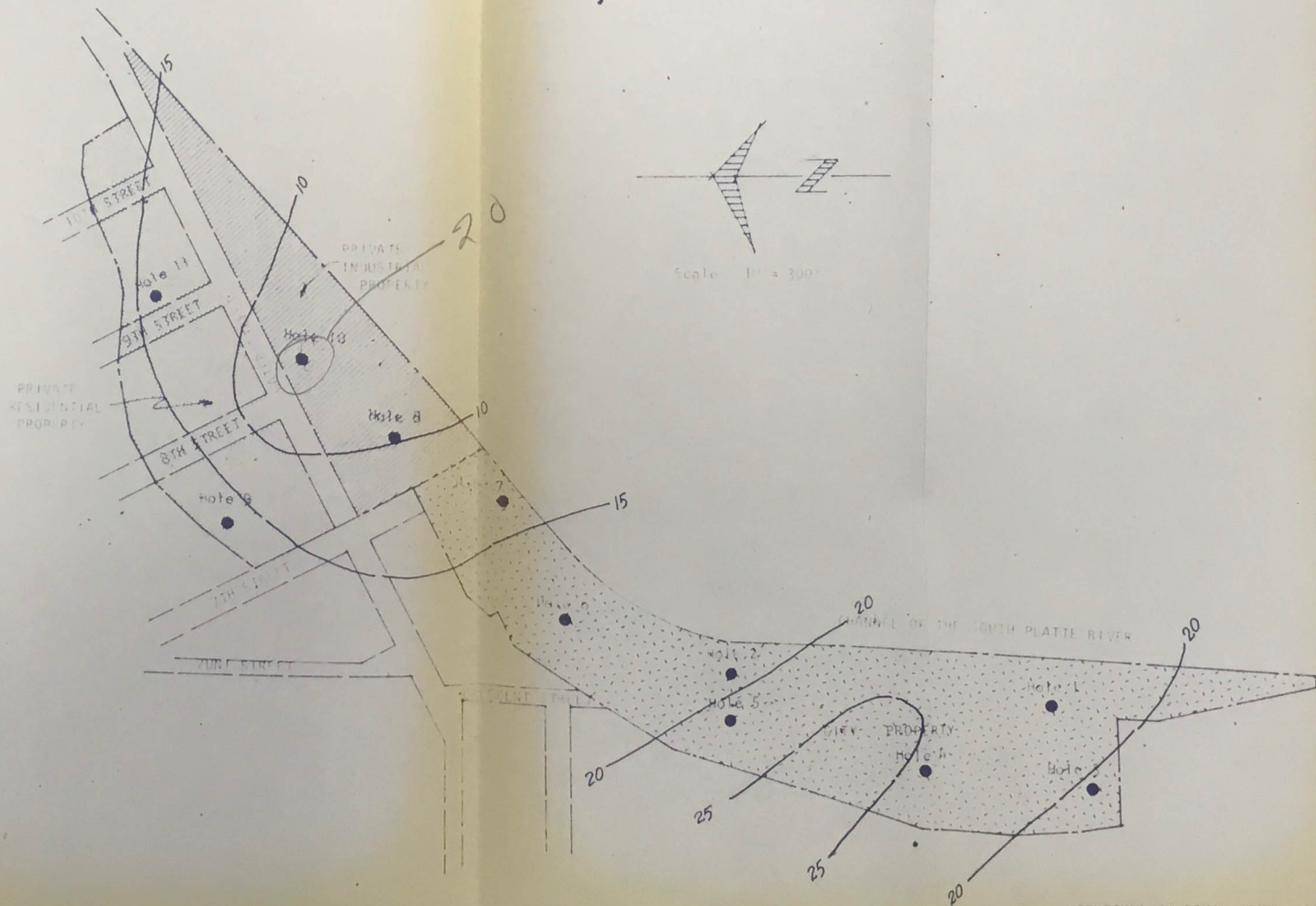


Indicates elevation of free water level and the number of days after the test holes were drilled that the measurement was taken.

NOTES:

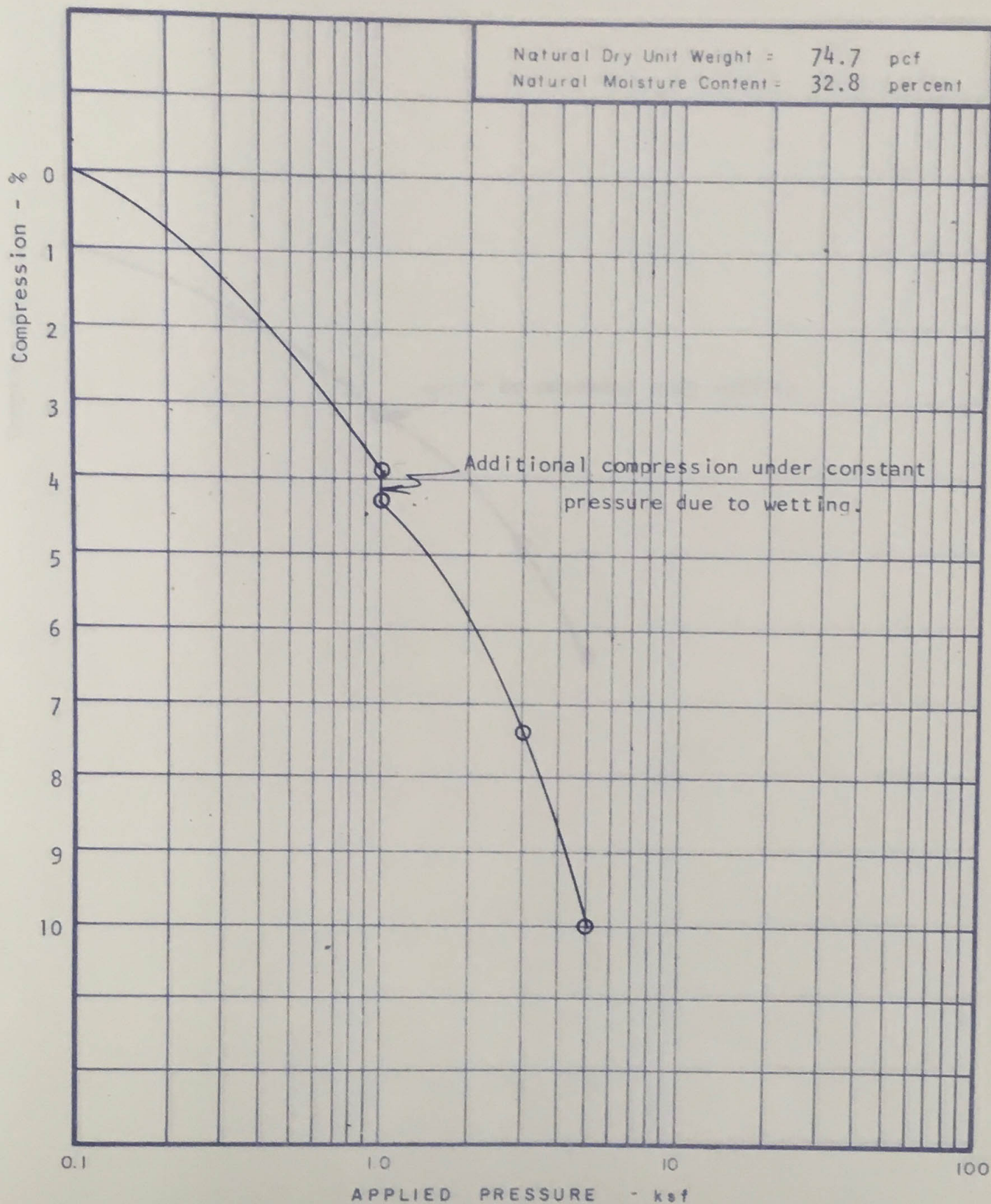
- (1) Test holes 1 and 2 were drilled March 23, 1972. Test Holes 3 through 11 were drilled March 25, 1972. Test holes were drilled with a 4 inch diameter continuous flight power auger.
- (2) Elevations of test holes refer to bench mark on 16th Street Viaduct (top of pier cap, 5th column from north on bent on west side of river. Painted elevation 5191.1. This is probably USGS datum.)
- (3) WC = Water Content (%); UC = Unconfined Compressive Strength (psf);
DD = Dry Density (pcf); LL = Liquid Limit (%);
PI = Plasticity Index (%); -200 = Percent Passing No. 200 Sieve.





CONTOURS ON EQUAL DEPTH Fig. 5
TO BEDROCK

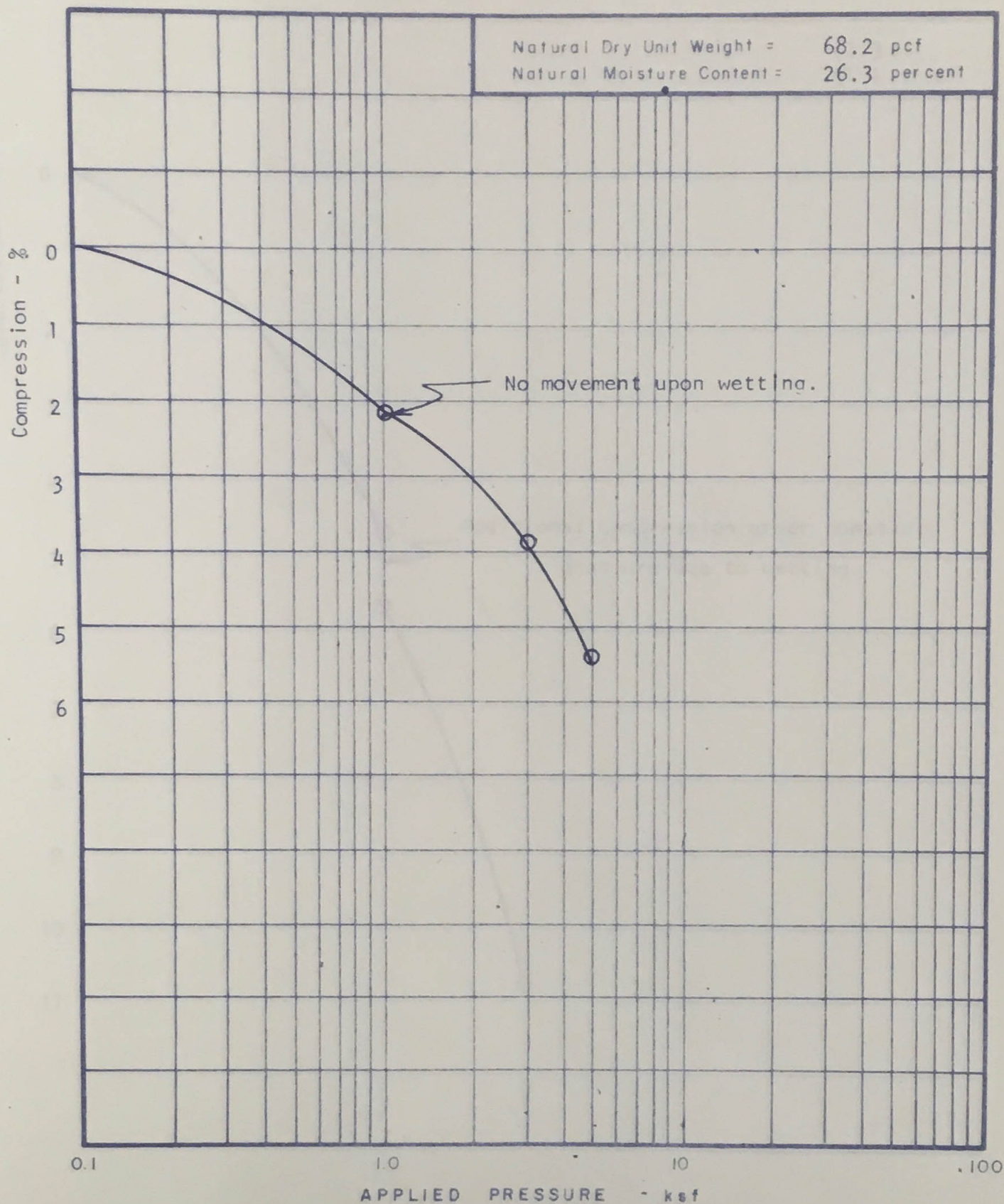
CHEN AND ASSOCIATES



Sample of trash fill from Hole 3 at depth 13'-0".

Swell - Consolidation Test
Results

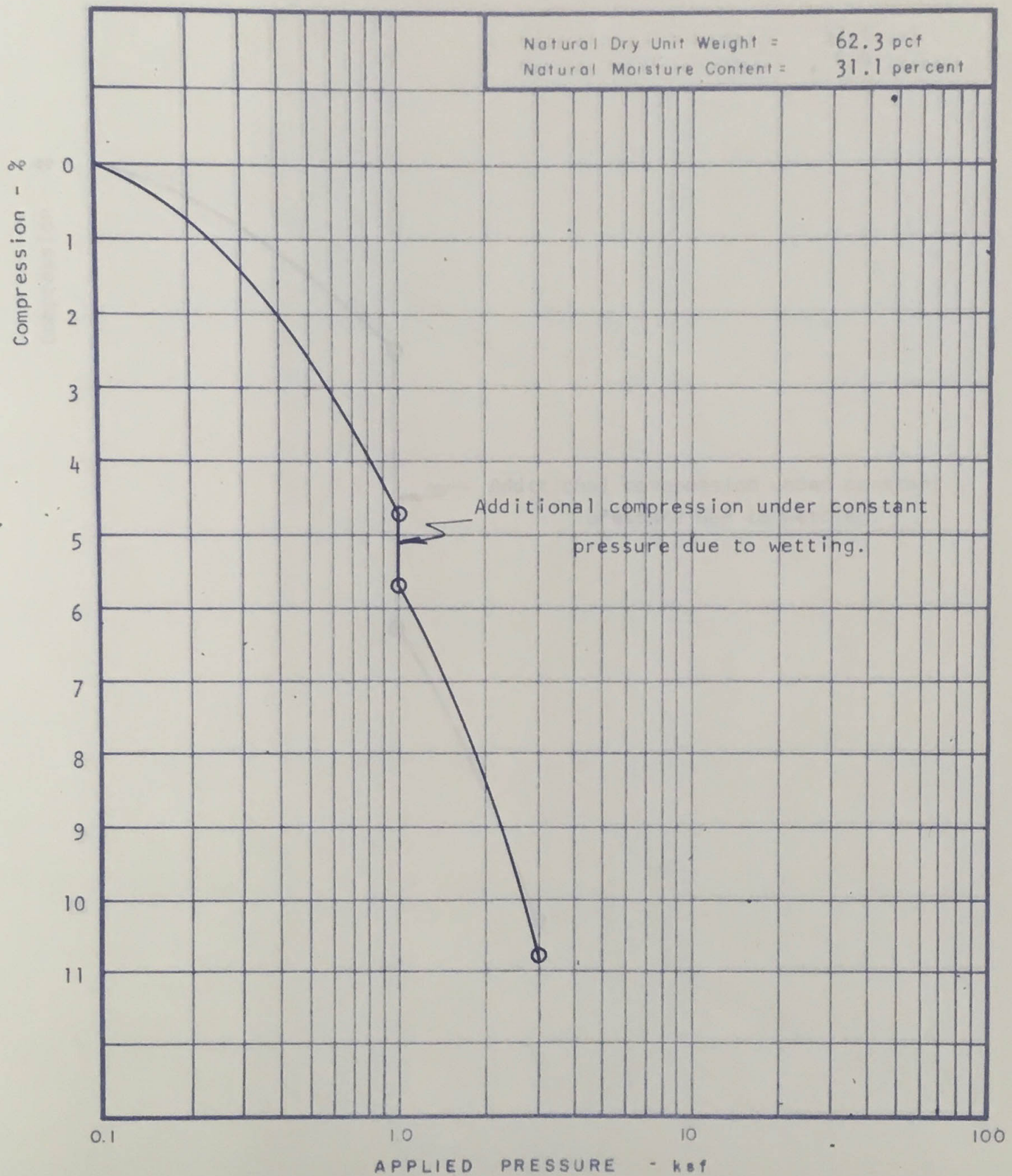
Fig. 6



Sample of trash fill from Hole 4 at depth 8'-0".

Swell - Consolidation Test
Results

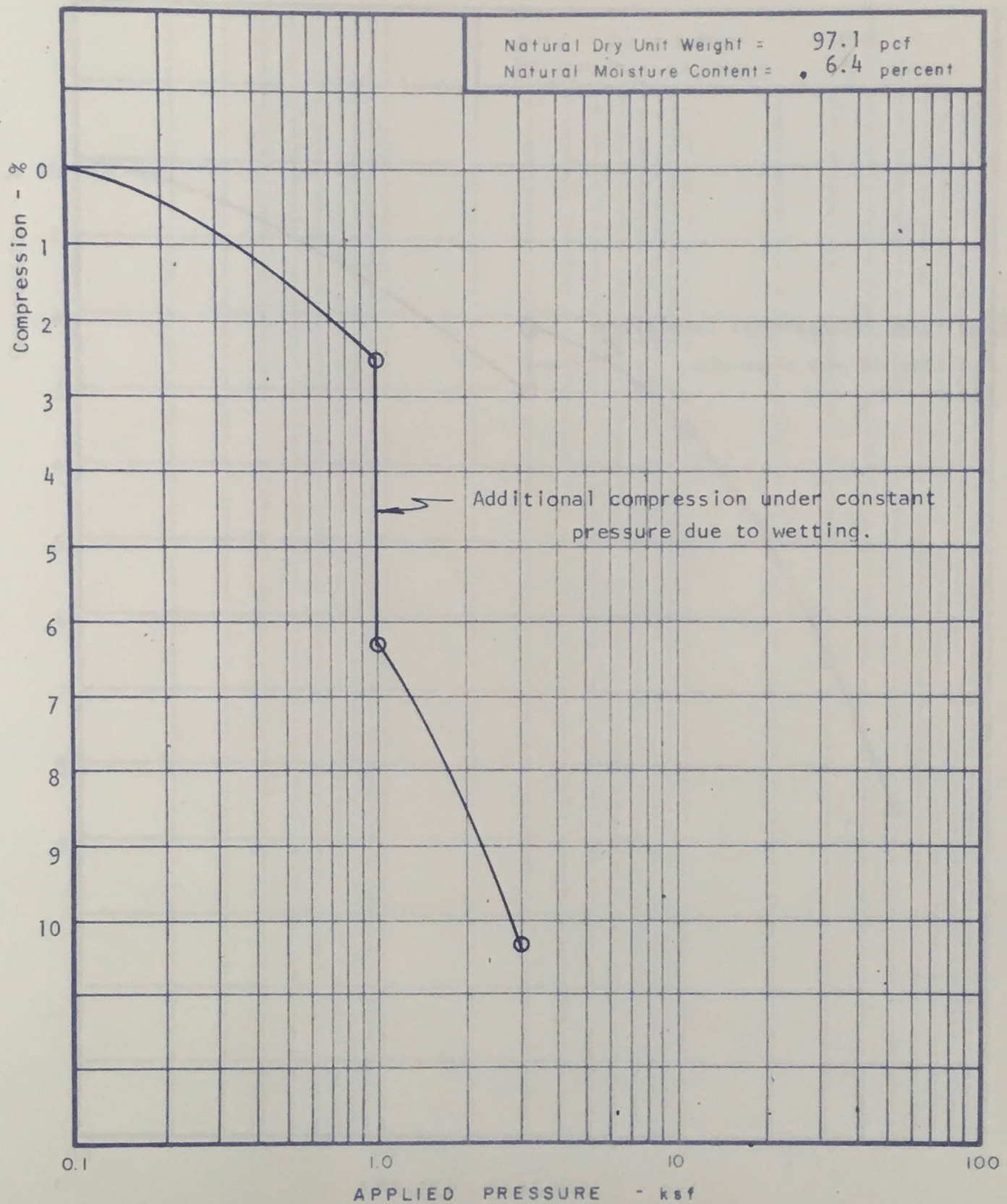
CHEN AND ASSOCIATES



Sample of trash fill from Hole 5 at depth 13'-0".

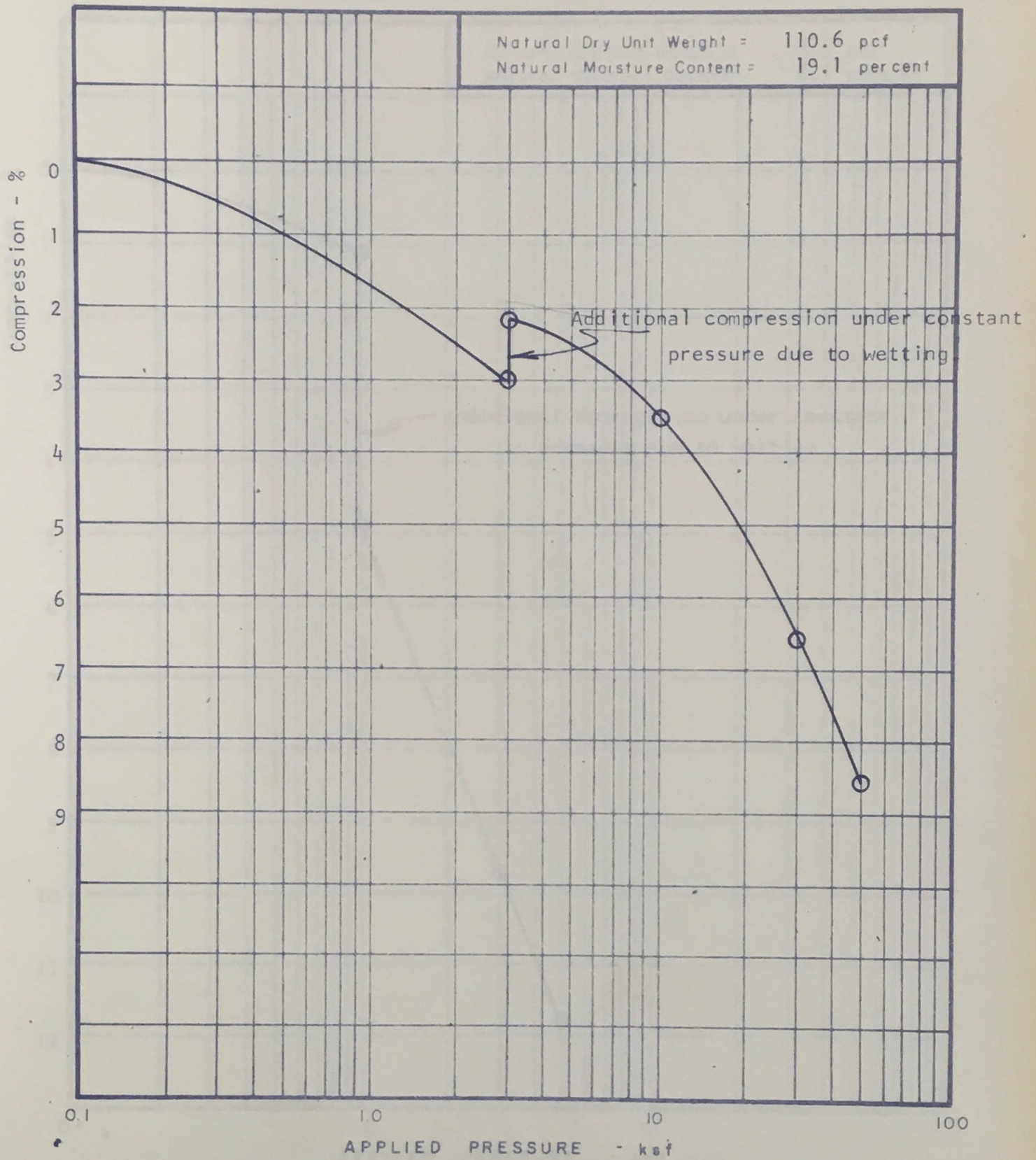
Swell - Consolidation Test
Results

CHEN AND ASSOCIATES



Typical sample of clayey sand from Hole 9 at depth 8'-0".

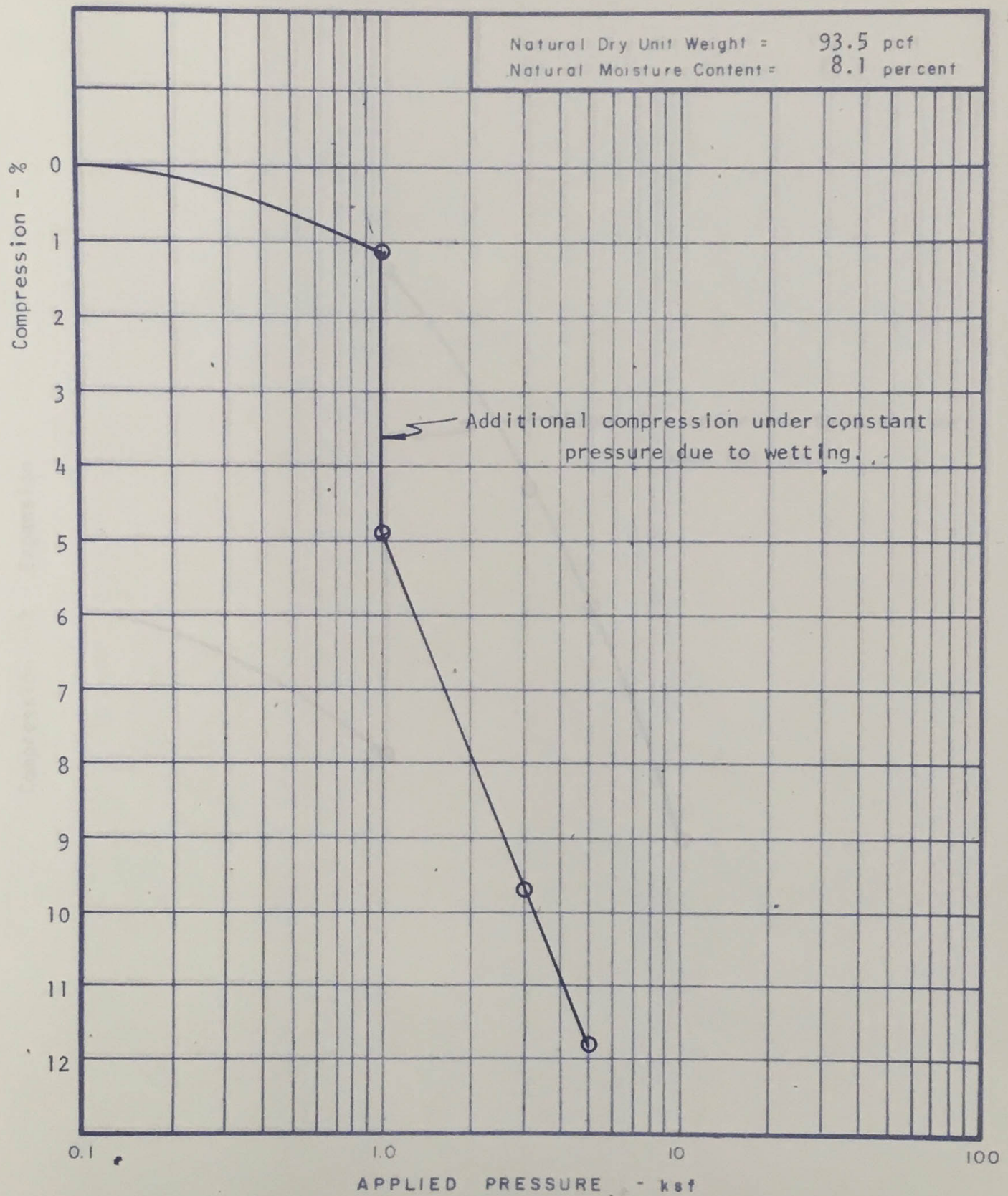
Swell - Consolidation Test
Results



Typical sample of claystone bedrock from Hole 9 at depth 23'-0".

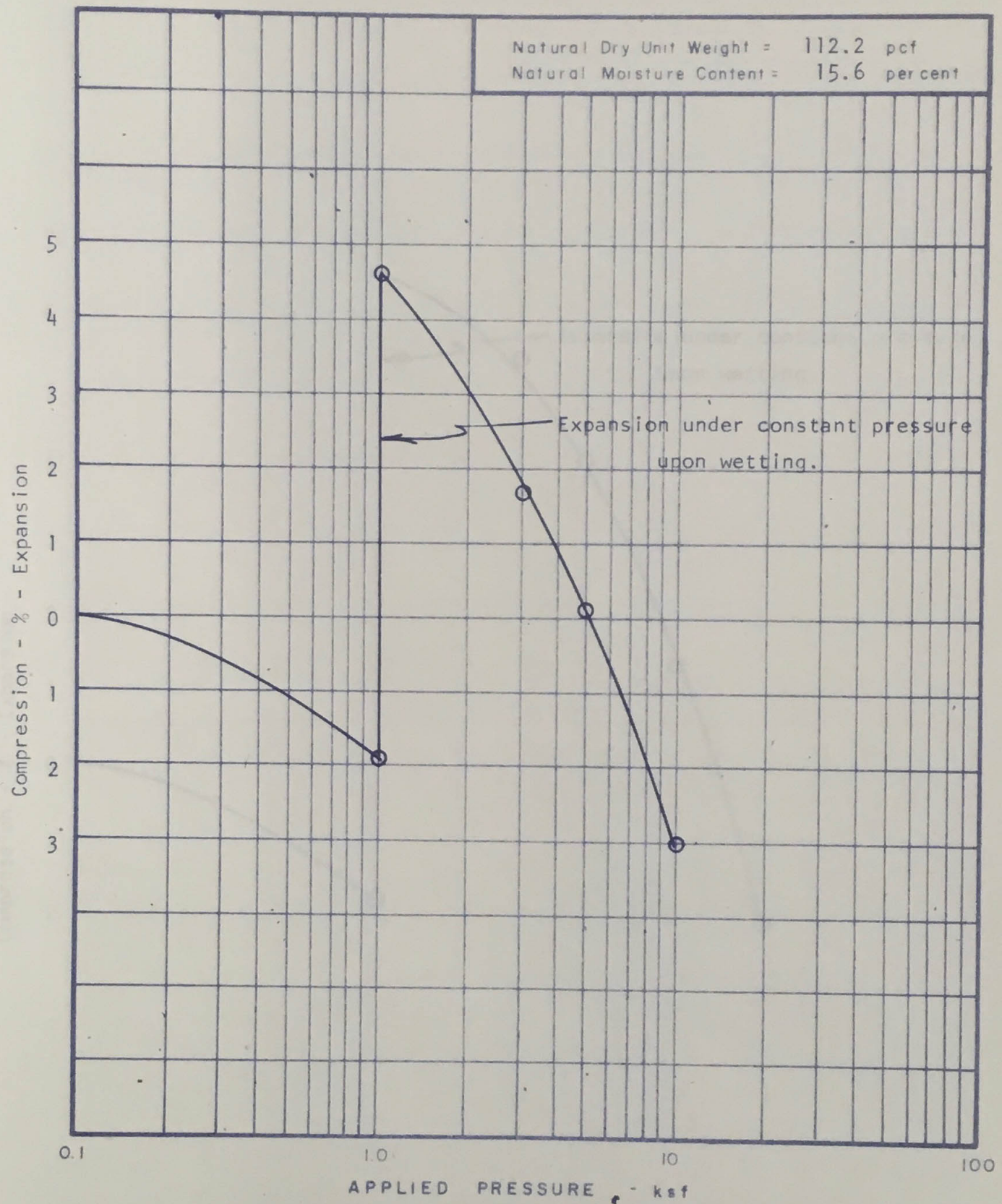
Swell-Consolidation Test
Results

CHEN AND ASSOCIATES



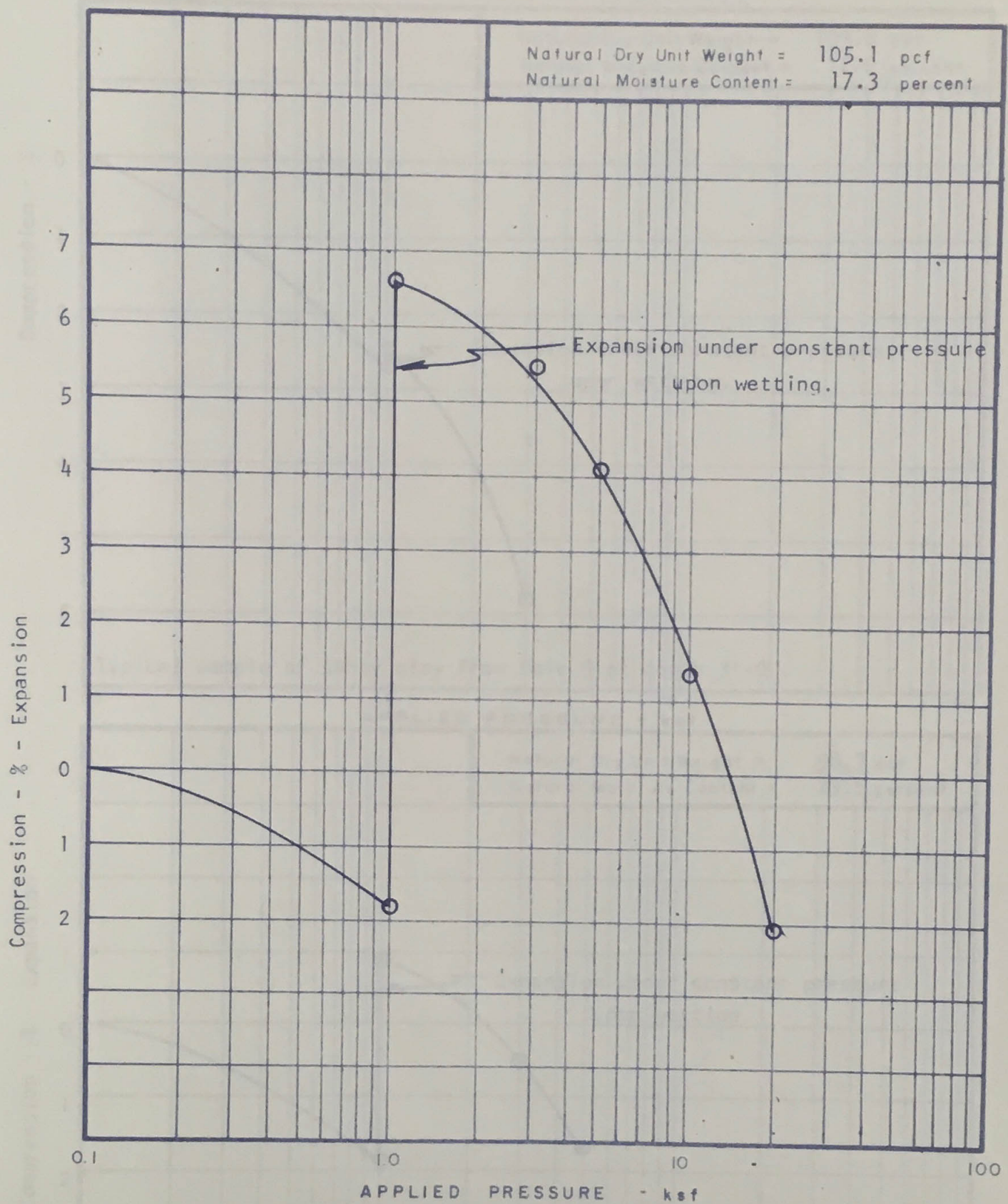
Typical sample of very sandy clay from Hole 10 at depth 3'-0".

Swell - Consolidation Test
 Results

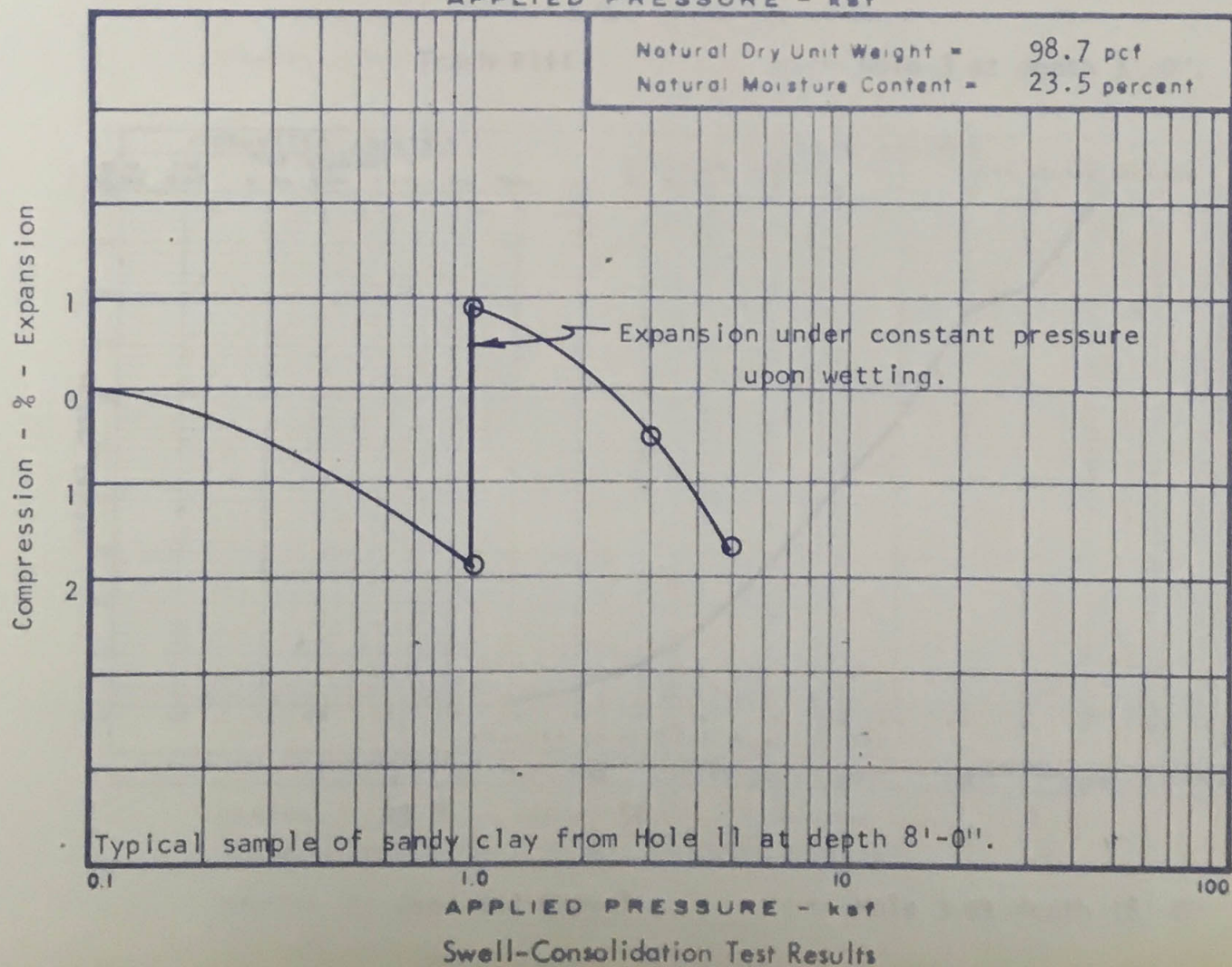
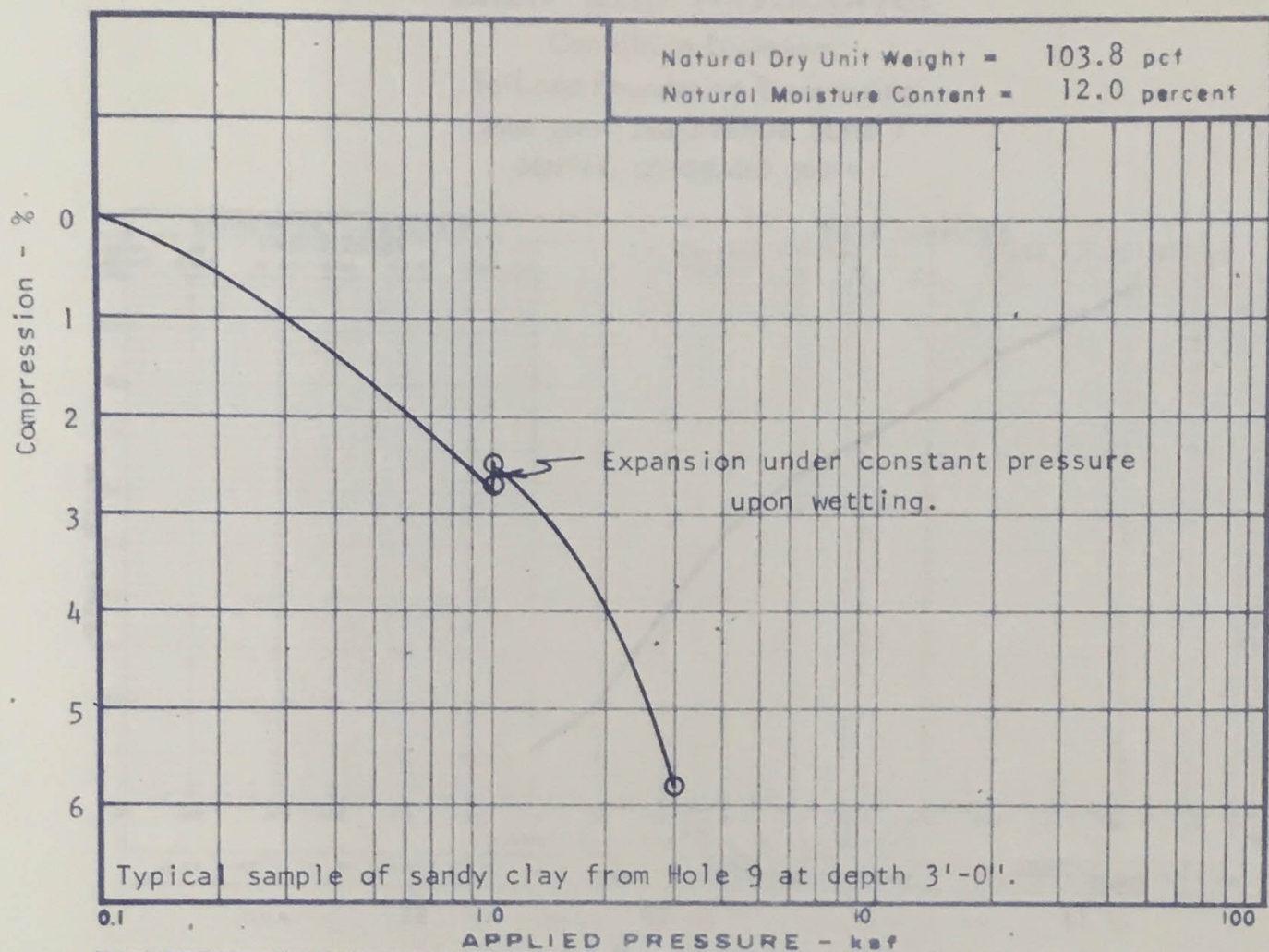


Typical sample of claystone bedrock from Hole 10 at depth 13'-0".

Swell - Consolidation Test
Results



Typical sample of claystone bedrock from Hole 10 at depth 23'-0".



Swell-Consolidation Test Results

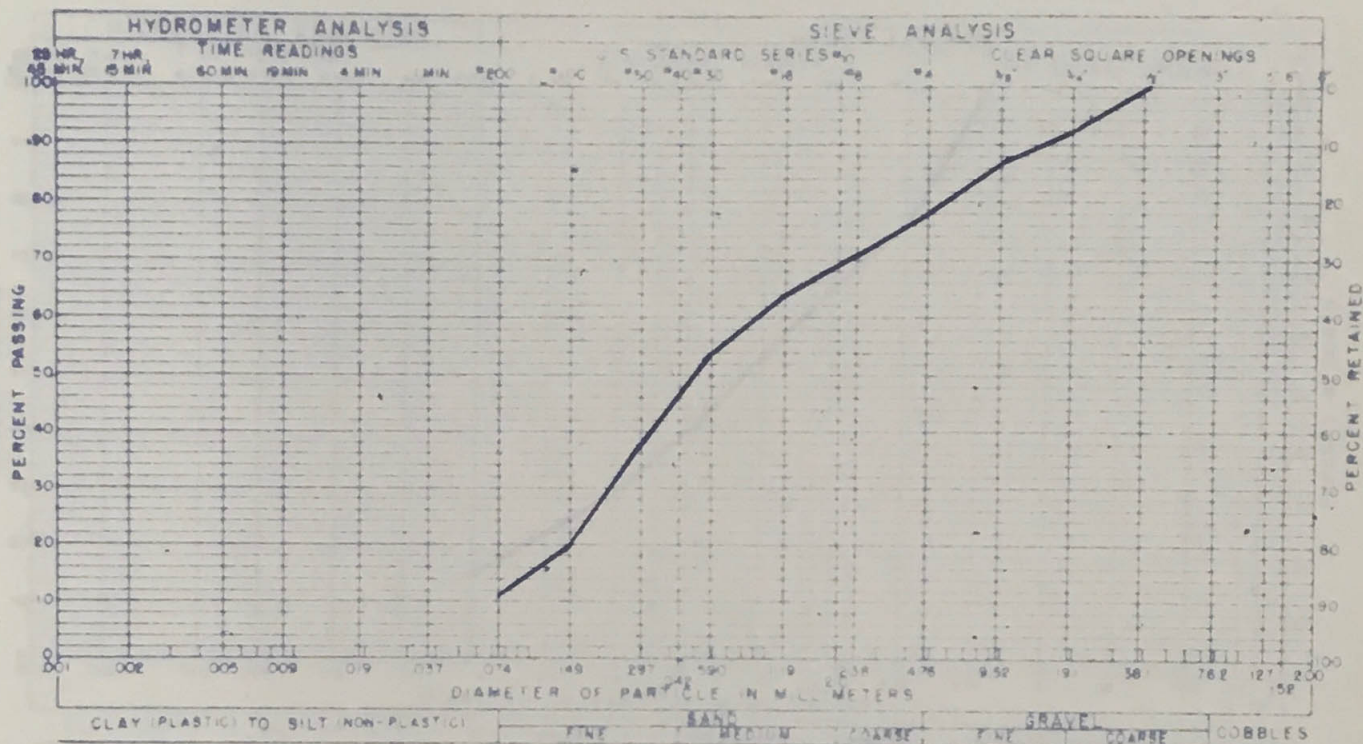
CHEN AND ASSOCIATES

Consulting Engineers

Soil and Foundation Engineering

2600 WEST 2nd AVENUE, SUITE 7

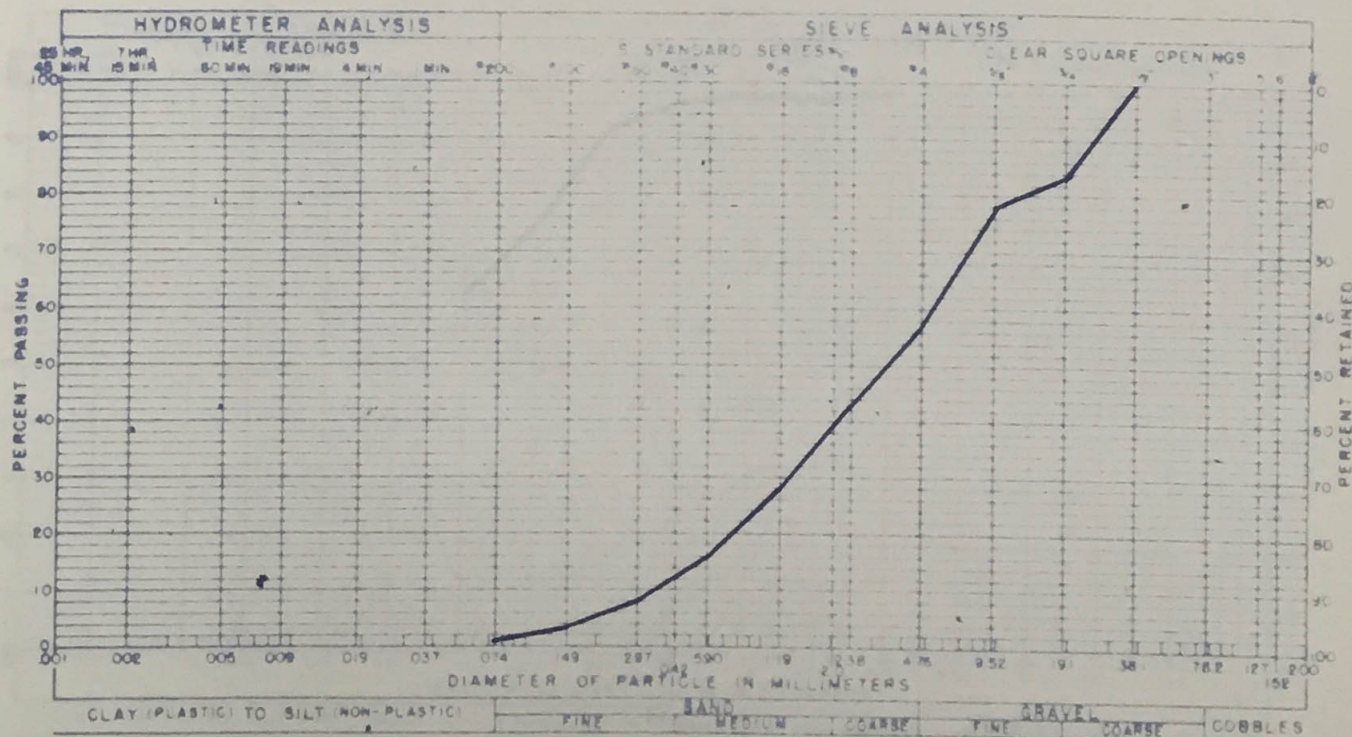
DENVER, COLORADO 80219



LIQUID LIMIT % PLASTICITY INDEX %

SAMPLE OF Trash Fill

FROM Hole 3 at depth 3'-0".



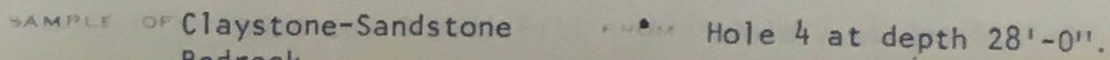
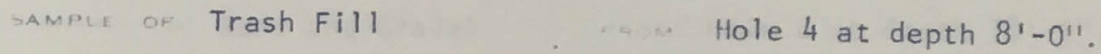
LIQUID LIMIT % PLASTICITY INDEX %

SAMPLE OF Sand and Gravel

FROM Hole 3 at depth 18'-0".

GRADATION TEST RESULTS

DENVER, COLORADO 80219



GRADATION TEST RESULTS

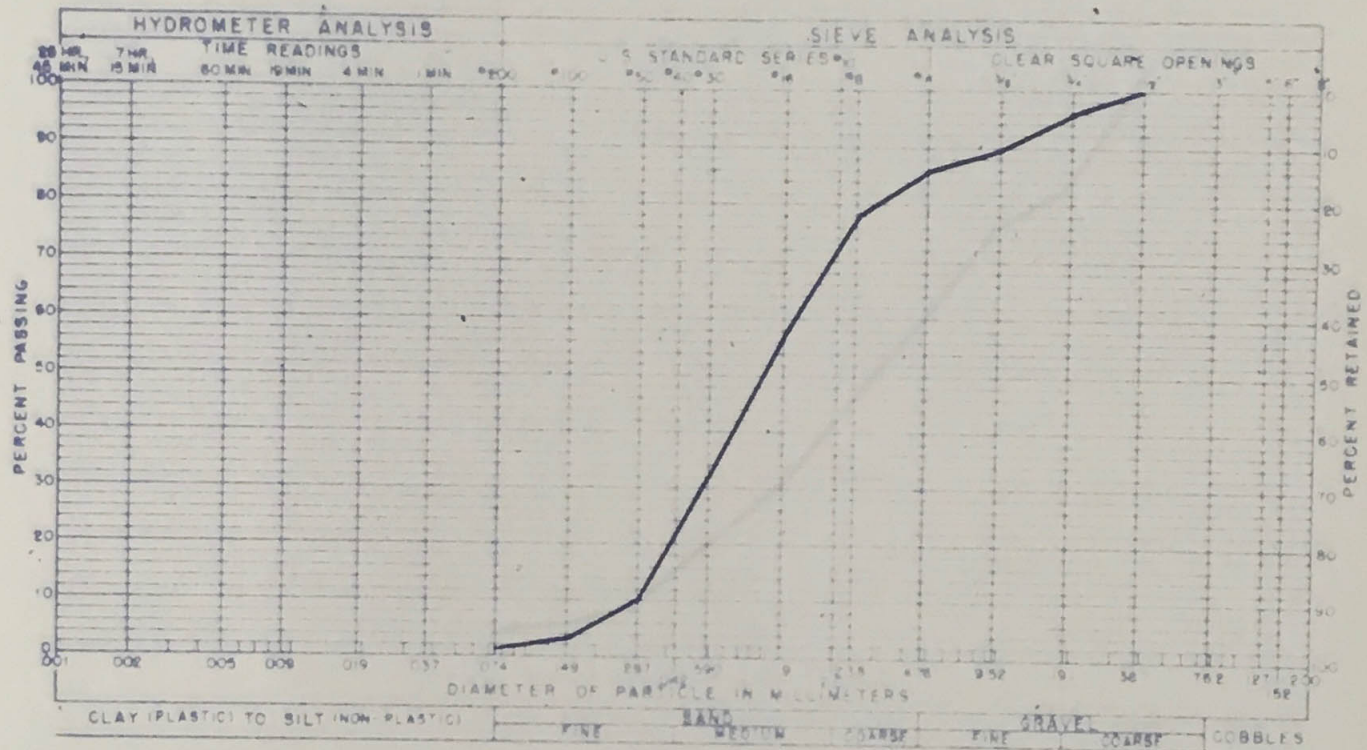
CHEN AND ASSOCIATES .

Consulting Engineers

Soil and Foundation Engineering

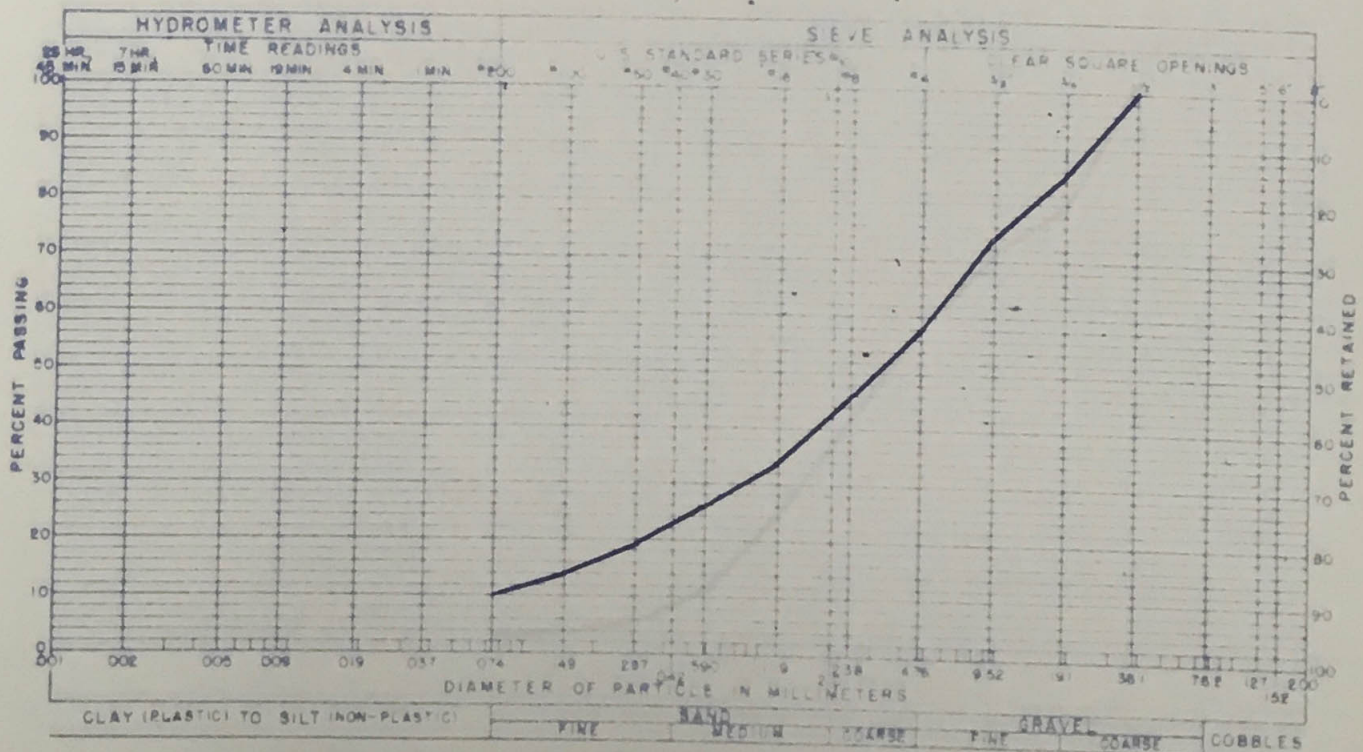
2600 WEST 2nd AVENUE, SUITE 7

DENVER, COLORADO 80219



LIQUID LIMIT % PLASTICITY INDEX %

SAMPLE OF Sand and Gravel FROM Hole 6 at depth 18'-0".



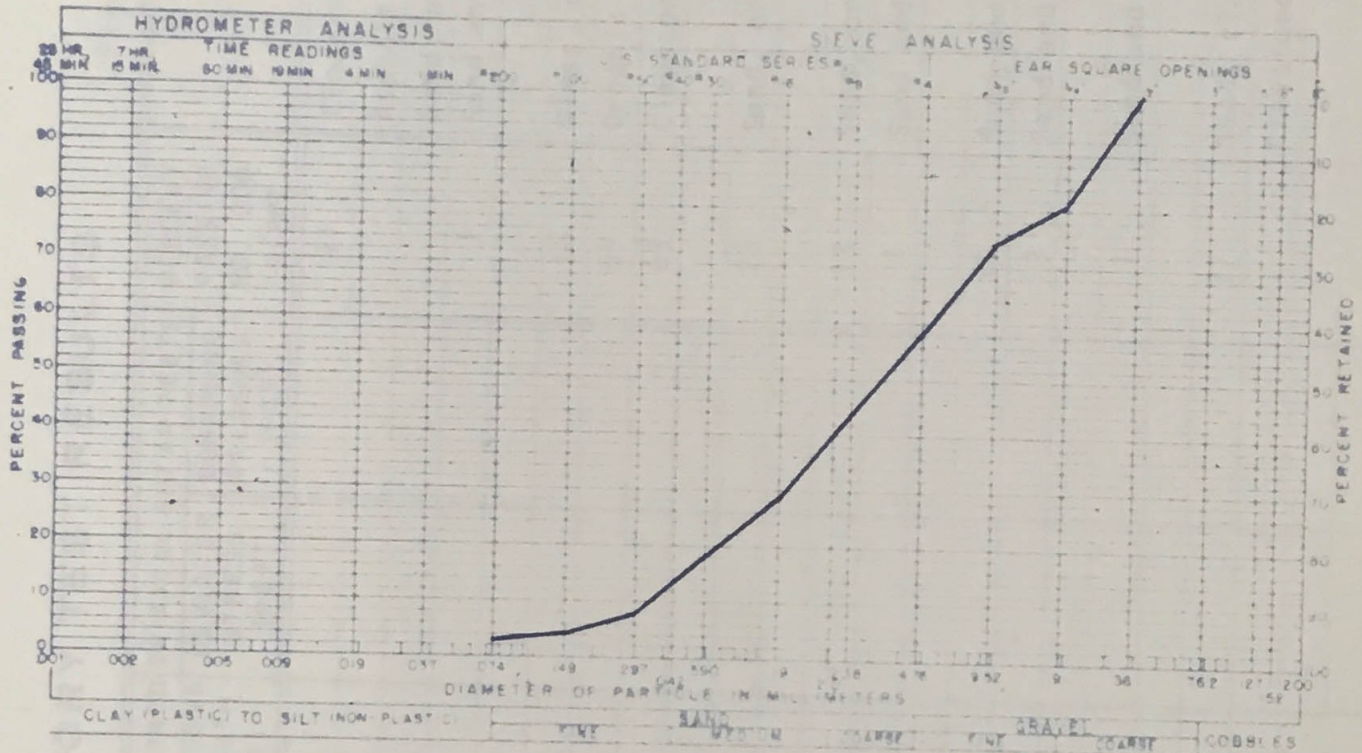
LIQUID LIMIT % PLASTICITY INDEX %

SAMPLE OF Sand and Gravel Fill FROM Hole 7 at depth 3'-0".

GRADATION TEST RESULTS

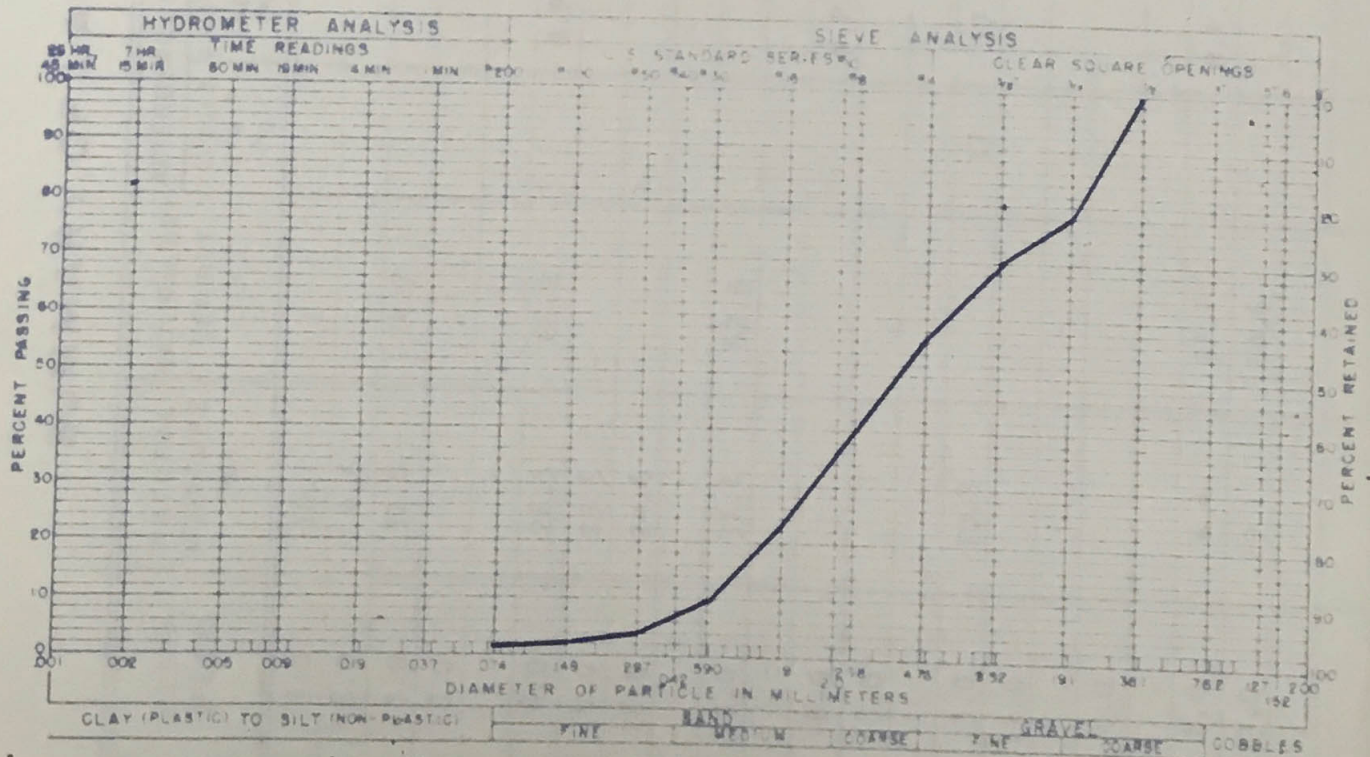
CHEN AND ASSOCIATES

Consulting Engineers
Soil and Foundation Engineering
2600 WEST 2nd AVENUE, SUITE 7
DENVER, COLORADO 80219



LIQUID LIMIT % PLASTICITY INDEX %

SAMPLE OF Sand and Gravel FROM Hole 7 at depth 13'-0".



LIQUID LIMIT % PLASTICITY INDEX %

SAMPLE OF Sand and Gravel FROM Hole 8 at depth 8'-0".

GRADATION TEST RESULTS

CHEN AND ASSOCIATES

TABLE I

SUMMARY OF LABORATORY TEST RESULTS.

Page 2 of 2

[illegible]



Foundations Caroline Platte River Site File

Miscellaneous Correspondence file

MARY BROOKS
28TH DIRECTOR OF THE UNITED STATES MINT

Mrs. Mary Brooks was appointed by President Nixon in March, 1969 to be the twenty-eighth Director of the United States Bureau of the Mint. She is the third woman to fill this important position.

As Director of the Mint and its six field institutions, Mrs. Brooks heads one of the fastest growing and technologically expanding government bureaus. She is responsible for the manufacture and distribution of an adequate supply of coinage to meet the daily needs of our continually growing economy. Other activities, which come under the supervision of the Director of the Mint, concern, the safeguarding of the Government's holdings of monetary metals, the refining of gold and silver, coinage for foreign governments, the manufacture of medals for the armed services, and the manufacture and sale to the public of medals of historic interest and special coin sets of numismatic interest.

Mrs. Brooks assumed her duties as Director of the Mint on September 1, 1969. She had been Assistant Chairman of the Republican National Committee, a position she had held since May of 1965. She was also a Senator in the Idaho State Legislature. She was elected to the Senate in 1964 from Blaine County and re-elected from the 21st District in 1966 and 1968. During her tenure in the Idaho Legislature, Mrs. Brooks was Chairman of the Republican Caucus as well as the State Affairs Committee and served on the Fish, Game and Recreation Committee and the Transportation and Defense Committee.

Mrs. Brooks was born in Colby, Kansas and reared in Gooding, Idaho. She attended Mills College in California and received her Bachelor of Arts degree from the University of Idaho. She is the daughter of former United States Senator, John Thomas of Idaho and served as his Administrative Assistant, prior to his death in 1945. Mrs. Brooks also worked in the family banking chain over the years before the chain was sold to the First Security Corporation. She has managed and developed a large sheep and cattle ranch in Southern Idaho, the Flat Top Livestock Company, in Muldoon, Idaho.

Married in 1939 to Arthur J. Peavey, Jr., who died in a hunting accident in 1941, Mrs. Brooks has a son, Idaho State Senator, John Thomas Peavey, who manages the family sheep and cattle ranch. Her daughter, Mrs. Gordon Eccles, lives in Picabo, Idaho. There are six grandchildren.

Mrs. Brooks was married in 1945 to United States Senator C. Wayland Brooks from Illinois who later served as a member of the Republican National Committee. After his death in 1957, Mrs. Brooks became a member of the Republican National Committee. She was elected Vice

Chairman of the Committee on July 29, 1960 and was Official Hostess to the Republican National Convention in Chicago in 1969. She served as Vice Chairman of the Committee on Big City Politics under the chairmanship of Ray Bliss in 1961. After her resignation from the Republican National Committee in 1963, she returned to Idaho to manage the ranch until her election to the Idaho Senate.

During 1971-72 Mrs. Brooks served as a member of the President's Commission on School Finance. She is also a member of the Coins and Advisory Panel, American Revolution Bicentennial Commission.

Her present and past memberships in civic, social and political organizations include: Kappa Kappa Gamma, AAUW, American Legion Auxiliary, Board of the Idaho Youth Ranch, Advisory Committee on Women in the Services, Vice Chairman of her Red Cross District, Mental Health Board, Immigrant Service League, Illinois Children's Home and Aid, Light House for the Blind, Arden Shore Association, and Board of Illinois Federation of Republican Women, Board Member of the American Newspaper Women's Club and the Advisory Council of the International Eye Foundation.

Since taking office in September of 1969, Mrs. Brooks has received the following awards:

1969	Elected New York Women's National Republican Club's Woman of the Year;
1970	Voted Idaho's Woman of the Year;
"	Elected to University of Idaho's Hall of Fame;
1972	Presented the Exceptional Service Award from the Treasury Department;
"	Presented the "I Left My Heart In San Francisco" Award from the San Francisco Convention & Visitors Bureau for her efforts in the restoration and preservation of the Old Mint Building;
1973	Awarded the Certificate of Merit from the California Historical Society.

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- | | |
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The Department of the **TREASURY** **NEWS**

BUREAU OF THE MINT

WASH., D.C. 20220 W04-5011

RECEIVED



MAR 7 - 1973

FOR RELEASE 10:30 A.M., EST
MONDAY, MARCH 5, 1973

OFFICE OF
SUPERINTENDENT

U. S. MINT AT DENVER March 5, 1973

Mrs. Mary Brooks, Director of the Mint, made the following statement today:

Desiring to involve all Americans in recognizing the importance of our nation's Bicentennial in 1976, President Nixon has asked every government department and agency to cooperate in the celebration of this milestone anniversary of American Independence.

Secretary of the Treasury George P. Shultz, on behalf of the Department of the Treasury and its Bureau of the Mint, has sent a draft bill to the Congress providing for design changes on the reverse of two of our coins -- the dollar and the half-dollar -- honoring our 200th anniversary.

The proposed changes mark the first time in our nation's history that designs on circulating coins would be changed honoring an anniversary of American freedom.

The bill would permit appropriate American Revolutionary War designs to replace current designs beginning in 1976 and remaining on both coins for a period left to the discretion of the Secretary of the Treasury.

The dates 1776-1976 would also appear on both coins at the time of issue and be changed yearly thereafter until such time as determined by the Treasury Secretary.

The new coins would be struck at the Mints at Philadelphia, Denver and San Francisco.

To help generate public enthusiasm for a significant celebration of this landmark anniversary, it is planned to release the new coins for circulation on July 4, 1975. This advance issuance of coins dated for the approaching year of celebration would assure widespread distribution throughout the country and would permit the Mint to strike a larger number in anticipation of greater public demand for the coins for use as circulating mediums of exchange and for collecting as souvenirs of a momentous occasion.

The early release date of the new designs applies only to the circulating cupro-nickel dollars and half-dollars and would be available, as is customary, at face value through the nation's banking system.

The 40% silver proof and uncirculated specimens of the dollar and the cupro-nickel proof and uncirculated versions of the dollar and half-dollar would be available during 1976 under the four special coin programs as presently conducted by the Mint.

The reverse designs of the dollar and half-dollar were especially selected for change to prevent disrupting the Mint's regular production capacity and to avoid causing a shortage of circulating coins due to coin collecting or other reasons.

The dollar and half-dollar are, of course, circulating coins but neither enjoys as wide circulation and use as the one cent piece, nickel, dime and quarter. The lack of wide circulation, therefore, will not be disruptive to the daily commerce of the country and the design changes will not strain the Mint's production capacity.

Because of the historical importance of the new designs, the Treasury Department has asked and the National Sculpture Society, 250 East 51st Street, New York, N. Y. 10022, has agreed to conduct a design contest among its nationwide membership, empanel a jury of experts to judge the entries and submit several designs for each coin to the Secretary of the Treasury.

The National Sculpture Society will formally announce the design contest at a later date.

Criteria for selection of the designs will include the beauty and historical significance of the designs and take into account the Mint's special technical and mechanical operations in reproducing the designs onto coinage dies that allow for maximum production on high speed presses.

The final selection of the designs will be made by the Secretary of the Treasury on recommendations from a committee composed of the Director of the Mint; the Chairman of the Senate Committee on Banking, Housing and Urban Affairs; the Chairman of the House Committee on Banking and Currency; the Chairman of the Advisory Committee on Coins and Medals of the American Revolution Bicentennial Commission and the Fine Arts Commission.

A BILL

To provide a new coinage design and date emblematic of the bicentennial of the American Revolution for dollars and half-dollars.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the reverse side of all dollars and half-dollars minted for issuance on or after July 4, 1975 and until such time as the Secretary of the Treasury may determine shall bear a design determined by the Secretary to be emblematic of the bicentennial of the American Revolution.

Sec. 2. All dollars and half-dollars minted for issuance between July 4, 1975 and January 1, 1977 shall bear "1776-1976" in lieu of the date of coinage; and all dollars and half-dollars minted thereafter until such time as the Secretary of the Treasury may determine shall bear a date emblematic of the bicentennial in addition to the date of coinage.

RECEIVED

MAR 7 - 1973

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

HISTORICAL BACKGROUND

Commemorative silver half dollars and quarter eagle (\$2.50) gold coins were struck in 1926 to help raise funds to finance the International Fair in Philadelphia, commemorating the Sesquicentennial of American Independence.

At that time, the Mint struck 1,000,000 half dollars as authorized by Congress and 859,408 were returned for melting. 200,000 quarter eagles were struck and 154,207 returned for melting.

Our 100th anniversary in 1876 was marked by striking copies of the 1776 Continental Dollar for the Centennial Exposition in Philadelphia.

The 1776 Continental Dollar, the first silver dollar size coin ever proposed for the United States, was struck in silver, brass and pewter. It never reached circulation and is believed to have been only a pattern piece. The exact number of copies struck with new dies in 1876, also in silver, brass and pewter, is not known; although 7,200 pieces reportedly were struck in pewter.

Changing the designs on the circulating dollar and half dollar in 1976 would place a symbol memorializing our nation's 200 years of freedom in the hands of every American.

DESCRIPTION OF COMMEMORATIVE COINS OF PAST
INDEPENDENCE DAY ANNIVERSARIES

Continental Dollar (Pattern pieces)

Obverse - The legend "Mind Your Business" appears below a sundial in the center of the coin. Encircling the dial is the sun shining forth at 11 o'clock, the word "Fugio" (meaning Time Flies) and the designer's signature "EG Fecit." Continental Currency 1776" circles around the outer rim of the coin. Varieties include spelling currency as "curency" and use of designer's initials "EG."

Reverse - "American Congress" encircles the words "We Are One" at the center of the coin. Thirteen linked rings each bearing the name of one of the first 13 states circle the outer rim of the coin.

1926 Commemorative Half Dollar and Quarter Eagle

Obverse - Profiles of Presidents Washington and Coolidge.

Reverse - The Liberty Bell.

Designed by the Mint's Chief Engraver John R. Sinnock.

Congress authorized	1, 000, 000 half dollar pieces
Returned for melting	859, 408
Outstanding	<u>140, 592</u>

Congress authorized	200, 000 quarter eagles (\$2.50 gold pieces)
Returned for melting	154, 207
Outstanding	<u>45, 793</u>

Col. Rhea *Jsh* Telegram

345P CDT JUN 7 72 KB057

K CCF 191 (NY 159CC406191)PD US TREAS B WSH 0438P EDT06/07/72

ZCZC 15003 PD WASHINGTON D C

MRS BETTY HIGBY, SUPERINTENDENT
UNITED STATES MINT
DENVER COLORADO

BT

EFFECTIVE JUNE 7, 1972 MR. BLAND T. BROCKENBOROUGH IS
APPOINTED ACTING OFFICER IN CHARGE, UNITED STATES ASSAY
OFFICE, SAN FRANCISCO, CALIFORNIA.

F H MAC DONALD

ACTING DIRECTOR OF THE MINT

/GDC 1029334/

NNNN(0440P EDT)

Miscellaneous Correspondence file

Littleton Faculty file

Michelin eying Gates but mint 'No. 1.'

Rhea

It's been hotly denied by Gates officials, their Realtors and the Littleton Chamber of Commerce.

Nevertheless the freshest report being circulated this week is that the proposed Littleton mint site — the vacant Gates tire factory — is being looked at seriously by the Michelin Tire Co. of France.

June Salis, executive director of the Littleton Chamber, declined comment but admitted a company representing a French firm is "very, very interested" in the Gates plant and that its representatives were to have toured the facility Tuesday.

But Doug Morrison, head of the Denver realty firm handling the Gates property,

denies he or any member of his firm has talked to the foreign company and said the mint still has "first crack" at the Gates facility.

"We did have some people who wanted to take an option on the property but that fell through," Morrison said. "We also have talked to Michelin but again, that was long ago and it was not of a serious nature."

"Our offer to the government still stands. Right now the mint has the first option."

Whether the U.S. Bureau of the Mint picks up the \$8.5-million purchase package, which includes the 425,000-square-foot building on 58 acres of Gates property, depends on the outcome of a study initiated by the U.S. Treasury Dept., to determine its operational feasibility for coin production.

The study, conducted by a team of General Services Administration (GSA) and Treasury officials last week, will be submitted to Treasury Secretary William Simon and Rep. William Armstrong (R-Colo.) Wednesday (today).

If the study indicates purchase of the Littleton facility would be \$29 million cheaper than the proposed Park Hill location in Denver, as suggested in a Bureau of the Mint report, and meets space and construction requirements, Simon has indicated, he will endorse the proposal. Armstrong has spearheaded consideration of the Littleton facility.

Walt Kline, Armstrong's administrative assistant, said the study and Simon's recommendation then will be forwarded to the Senate Banking Committee which will begin hearings on funding appropriations for the new mint Friday, Feb. 27.

Let's have your opinions about U.S. mint location

Voice your opinion about the new U.S. Mint location.

Rep. William Armstrong (R-Colo.) has suggested locating the new U.S. Mint in a vacant Gates tire factory in Littleton instead of constructing a new facility at the proposed Park Hill Golf course site in Denver.

His proposal, to be considered by the Senate Banking Committee Feb. 27, was in-

(circle one)

The new U.S. Mint should be located in :
Littleton Denver

The location of the mint should be based on construction or remodeling cost factors only.
Yes No

So far, the mint issue has concentrated on political viewpoints and factual information has been lacking.
Yes No

Name _____

Address _____

initiated because a report published by the Bureau of the Mint stated \$29 million in construction costs could be saved if the Gates facility was chosen.

What are your opinions regarding Armstrong's proposal? Please answer the following questionnaire (check your answers) and mail this questionnaire to the Sentinel, 3434 So. Acoma St., Englewood 80110.

Here are my alternatives to the issue:

UNITED STATES GOVERNMENT

Memorandum

TO : Betty Higby, Superintendent

DATE: February 25, 1976

FROM : H. Frost, Jr., Assayer *HJF*

SUBJECT: Telephone Conversation with Mrs. Pat Schroeder

At about 10 P.M. on Monday evening, February 23, I received a telephone call from Mrs. Schroeder in regard to the Littleton Mint site. She said she was calling me as a friend. The conversation was long - she did most of the talking. As I remember, the conversation went like this:

1. Preliminary greeting.

2. Question: Just what is the Mint at Denver doing about the Littleton Mint site?

Answer: The heads of the divisions and the engineers made a visit and inspection. Object was to determine the usefulness of the Gates plant as a minting facility. Each division wrote its own report to Mr. Rhea. The assumption was that some might see things the others passed by. Mr. Rhea was to sort out all of the opinions and make a conclusive report. Mr. Rhea asked all to be technically and practically specific, with no regard for social considerations, travel, housing, minorities, etc.

3. Question: What about GSA?

Answer: They sent their own people, mechanical, electrical, structural, etc. to make an assessment. They kept their material to themselves. They made the estimates of cost.

4. Question: Was the press given the facts?

Answer: Yes, they were briefed before the inspections. The reports of the Mint were sent to the Bureau through Mr. Rhea. The GSA made their own reports. I don't know if the press received information from them or not.

5. Question: Why is the Bureau so reluctant to give out information? Is it a secret?

Answer: There are no secrets. Mr. MacDonald and the Bureau hesitate to pass out information until it is standardized and documented.



6. Question: Why does it take so long?

Answer: It doesn't take long. The Bureau and the Mint have had very little time to make studies.

7. Question: Why was Mr. Rhea's original \$29 million estimate represented by the Bureau to be considered an engineering estimate?

Answer: Mr. Rhea considered the estimate as a very private estimate and had no idea that the material would even be used to document any statements. You weren't very fair to Mr. Rhea to bring the whole thing to the fore.

Statement: I'm sorry about Mr. Rhea, but the Bureau was very emphatic (by Mrs.S.) about having the facts. I was surprised that I did not receive a concise report.

Statement: It was concise and contained the very preliminary calculations. Mr. Rhea is familiar with all of the problems (by Mr.F.) involved. He did not intend these figures to leave his desk, although he did tell the Bureau his conclusions.

8. Question: Why did the estimates use such high figures for building cost? I found out that the FBI building cost \$57 per square foot - it's a palace.

Answer: The FBI is a multi-story office building. A heavy industrial building costs more because of the long spans and high floor requirements.

9. Question: Why did the estimates use the Philadelphia Mint as a starting base? It was a boondoggle from start to finish.

Answer: The estimates are not based on Philadelphia as far as a building is concerned. As for machinery, it is the only place we can start from.

(NOTE: I did not know that the GSA stated that they were expanding the figures from Philadelphia - a stupid statement.)

10. Question: How do the Mint personnel feel about Park Hill vs Littleton?

Answer: I don't know.

Question: Has the Bureau asked for opinions from Denver people?

Answer: I don't know. This has been and is a Bureau decision.

11. Question: Is the Mint and the Bureau aware of the benefits to the minority group that is offered regarding the Park Hill site?
- Answer: Yes, they are.
12. Question: Why doesn't the Bureau and the Mint take these things into consideration?
- Answer: They do, but for social considerations, they are not in any position to say yes or no. The Bureau as an operating technical institution carries out the policies from the Congress and the Treasury.
13. Question: Why did the Mint listen to the Gates proposal? Why didn't they say the site was closed?
- Answer: It was felt that the Mint had to listen to and investigate any proposition that might be beneficial. Many ideas have been received and investigated.
14. Question: Where do I go from here?
- Answer: I don't know. I suppose the Proxmire committee will decide the issue in what they consider to be in the best interests of all concerned.
15. Question: Is there anything wrong with the Park Hill site? Does the Mint reject the Park Hill site?
- Answer: No.
16. Question: Is the Gates plant a suitable facility?
- Answer: Yes.
17. Question: Is the Bureau aware of the legal position of the City?
- Statement: The City has all of the legal questions in its favor. (by Mrs.S.) However, it may not use them.
18. Question: Is the Mint aware of the fact that Secretary Simon is coming out in favor of the Littleton site?
- Answer: Yes.

The conversation was lengthy. Mrs. Schroeder did most of the talking.

cc: Frank Rhea ✓

March 3, 1976

Ms. M. E. Wilklow
Westwood P.O. Box #19285,
Denver, Colorado 80219

Dear Ms. Wilklow:

I wish to acknowledge your letter of February 13, 1976, and thank you for writing to me stating your concern for the future site of the Denver Mint.

As you know, at this time the future site is undecided, but we do appreciate your interest and comments as well as those from other people who have proved to us that our citizens are not apathetic.

I am sure that when the final site decision is made, and the building constructed, we shall be proud of our new Mint building.

Sincerely,

(Mrs.) Betty Higby
Superintendent

cc: Superintendent
Frank Rhea, Facilities
Project Mgr.

Denver, Colorado 80219
Westwood PO Box No. 19285
13 February 1976

Ms. Betty Higby, Superintendent
Bureau of the Mint
320 West Colfax
Denver, Colorado 80204

Dear Ms. Higby:

SELECTION OF SITE FOR U.S. MINT

Where should it be located?

Politics should have nothing to do with the selection of the site. This is a matter which affects the good of all of us--the pocketbooks of the taxpayers. The parties should forget their political boundaries and concentrate on:

1. The cost of the land;
2. Cost of building materials;
3. Suitability of the structure for its purpose--especially the strength of construction for heavy manufacturing equipment;
4. Economy of operation and maintenance;
5. Safety against sabotage;
6. Relationship to other Government buildings.

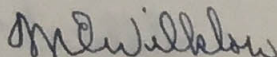
It is not logical that our Federal buildings should be scattered all over the region. The Denver Federal Center was purchased for the purpose of gathering them in one location for convenience of administration. Let us use the land which is already paid for and fills all the requirements for the new mint. The advocates of other sites are forgetting many points.

Enclosed is a partial list of items included in the selection of the site, all of which should be considered by the panel which will make the final decision. Apparently there are individuals and/or factions which have succeeded in removing the Denver Federal Center from the list of possibilities. I wish to bring it back into serious consideration.

What has stirred me up? The fact that I have run into arguments which are not based on fact but are purely biased opinions, which has generated the suspicion that there is too much self-interest involved and caused me to launch this campaign. I am doing this without a single axe to grind, either politically or financially. As a Senior Taxpayer who can prove an ancestry in this country since 1771, I hold a status which qualifies me to represent the other taxpayers and U.S. citizens.

A decision favoring the Denver Federal Center would end the political squabbles and start the construction of a beautiful new building we would all be proud of. Is this wishful thinking?

Respectfully submitted,



M. E. Wilklow

ANALYSIS OF DENVER FEDERAL CENTER AS SITE FOR NEW UNITED STATES MINT
TO BE CONSIDERED BY U.S. SENATE BANKING COMMITTEE.

SEVERAL SITES HAVE BEEN SUGGESTED AND THEIR ADVANTAGES URGED BY INTERESTED PARTIES. A COMPARISON WITH THE DENVER FEDERAL CENTER IS CAREFULLY ANALYZED IN DEPTH, AS FOLLOWS:

1. The land at the Center is already owned by the Government, and therefore the chance of private or public involvement in its purchase is not possible. Millions of dollars in purchase price would be saved.

The Park Hill Golf Course could be sold back to its previous owners or held for investment.
2. A remodeled building can never be anything but a makeshift. We should settle for nothing less than a good, tough, bomb-resistant structure that will last for many generations.
3. The Denver Federal Center is closer than any other suggested site to the red sandstone quarries at Lyons and the clay deposits near Golden, which make excellent fire brick and building material.
4. The statement that there is no room left at the Federal Center is not true or based on fact at the present time. There is plenty of room which is not earmarked for any other activity.
5. The beautiful, level site on the southeast corner of the Center would be ideal and an asset to the surrounding neighborhood. There are other fine locations on Sixth Avenue and Alameda Avenue which have everything to be desired. A handsome, red sandstone structure, set within a stone wall and well landscaped, would be an imposing addition to the area.
6. The heating and power systems could be tied into the present central heating system in use by the other buildings at the Center. This would eliminate the need for auxiliary and storage buildings.
7. It would be necessary to enlarge the central plant, but would not cost as much as necessary at other sites.
8. Air pollution would be carried away by the natural north-south winds along the foothills.
9. Railroad tracks are already in place. Public transportation has already been established. City buses run along Sixth Avenue and Alameda. Parking is not a problem. *
10. The proximity of the GSA buildings to service the facility is an asset. The Health Unit, restaurants, and other activities for the convenience of the Federal employees would be available to all.
11. The name "Denver" could be retained, since it is used for the Center. Therefore, all the dies and equipment bearing the name would be saved.

Respectfully submitted,

McWalter
Senior Taxpayer

*Of prime importance is the existing security and guard system which can be shared.

AFGE

Local - 695

U.S. Mint

Denver, Colorado



To do for all that which none can do for himself

C.M. Dalla
President

G.P. Trujillo
Vice President

L.J. Dalla
Secretary / Treasurer

Attn. Marion Mayer
Rm. 5300 New Senate Office Bldg.
Washington D.C., 20510

03-09-76

Dear Senator Proxmire:

At the February general membership meeting of AFGE Local-695 it was requested that the bargaining unit employees be polled as to their preference of a site selection for the proposed New Denver Mint. The results of this poll revealed the following data:

1. 352 questionnaires distributed
2. 209 questionnaires returned
3. 118 (56%) in favor of Park Hill Site
4. 74 (35 %) in favor of Littleton (Gates) Site.
5. 17 No preference

Of the 118 employees who favored the Park Hill site, the questionnaire revealed that their choice was made for the following reasons:

1. Sistance of the site from present residence -45
2. Possible economic loss to the "Core City of Denver"-40
3. The loss of "Tourist Visitation" -30
4. Other -3

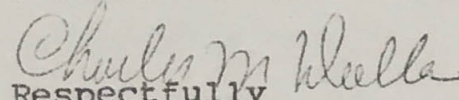
Of the 74 employees who favored the Littleton (Gates) site, the questionnaire revealed that their choice was made for the following reasons:

1. Distance of site from present residence -13
2. The possible savings of app. \$25 million to the govt. -25
3. The possibility of having the new mint operational in three years as opposed to the estimated 5 years for the construction of a new facility -20
4. Other - 9

A small percentage of employees were either undecided on a new Mint site or had no preference. Their responses were of a wide range and cannot be tabulated into any meaningful statistical data.

Please include this information into the official record at the upcoming hearings being conducted by your Committee on this issue.

If I can be of further assistance to your Committee on this matter please feel free to contact me.


Respectfully
Charles M. Dalla
President/L-695

Business Phone 303-837-3302
Home Phone 303-428-0036

STATEMENT OF THE HONORABLE DAVID R. MACDONALD
ASSISTANT SECRETARY OF THE TREASURY
(ENFORCEMENT, OPERATIONS, AND TARIFF AFFAIRS)
BEFORE THE SENATE COMMITTEE
ON BANKING, HOUSING AND URBAN AFFAIRS
ON S. 1339 AND H.R. 5620
FRIDAY, FEBRUARY 27, 1976

Mr. Chairman, I am pleased to be here today to testify in support of legislation which would enable the Department to replace the present Denver Mint with a new and modern facility. The bills you are considering today would amend the 1963 Mint construction statute by increasing the amount of authorized funds and by extending the period during which these funds would be available for use in building the facility. In effect, the proposals would authorize the funding of up to \$65 million for a new coinage facility to replace the existing Mint at Denver. The funds so authorized would be subject to annual appropriations and would be available through fiscal year 1983.

Passage of the legislation, in our view, is essential to assure production of coins in the quantities required in the years ahead. Virtually all coinage production takes place in the U.S. Mints at Philadelphia and Denver. At the time the present Denver Mint began operations in 1906, it produced about 13 million coins. Today, after several expansions that have strained the

facility, it produces 5 billion coins in a multi-story, outdated building which any private manufacturing concern would have abandoned years ago.

In the meantime, the total coinage demand of the nation, which has nearly doubled since 1970, is expected to rise to approximately 18 billion coins per year by 1980 from the current annual demand of about 13 billion coins. The demand is expected to increase further to 30 billion pieces by 1985. Even if the present rate of increase does not itself increase in the future, the present production capacity of the Bureau of the Mint would probably be insufficient to meet coinage demand by the end of this decade. Action should, therefore, be taken now to prevent the recurrence of a coinage shortage similar to the one we experienced about a decade ago, which would seriously inconvenience our citizens and hinder retail transactions throughout the nation.

To be able to satisfy the anticipated increase in coinage demand, we project that a new Denver Mint facility must be in operation by 1980. Once completed, the new Mint will have an initial production capacity of 10.5 billion coins per year -- in contrast to the present production of about 5 billion coins -- which could ultimately be expanded to 25 billion coins annually. Together with the other Mint facilities which have the combined capacity of producing 11 billion coins per year, the new Denver Mint would represent an assurance that our nation's coinage needs would be fully supplied for many years.

The bills before you, Mr. Chairman, (S. 1339 and H.R. 5620) are essentially the same as the measure proposed by the Administration in early 1973,

which the Senate, after unanimous approval by the Banking Committee, passed in June 1973. While that measure was similarly approved by the House Public Works Committee, it failed to gain the votes necessary for passage under suspension of rules in the House in the closing days of the 93rd Congress. Before the Administration could reintroduce the proposals in this Congress, the Colorado delegation both in the House and Senate introduced the bills now pending before you. After hearings before the House Public Works Committee, held in the spring of 1975, the House overwhelmingly approved the proposal in September of last year.

While the authorization proposal was being considered by the 93rd Congress, the Department and GSA undertook a thorough evaluation of the available sites in the Denver area for a new Mint facility. After an intensive examination of available alternatives, and after completion of clearance in accordance with the National Environmental Policy Act of 1969, the Department selected a site for the facility in July 1974, which is known as the "Park Hill" site. This site is located on a golf course in the northeast part of Denver and consists of some 34 acres. Under an agreement with the City of Denver, title to that property was conveyed to the Federal Government by the City for \$1.5 million in September 1975.

Although the Department continues to consider the site we have so acquired as an excellent and entirely feasible location for a new Denver facility, we feel obligated to bring to your attention, Mr. Chairman, an alternative site which our people and GSA have concluded will result in considerable savings for the Government. Approximately three months ago,

a real estate firm brought to our attention the availability of an industrial facility (known as the Littleton facility) located just outside Denver. This vacant industrial building (containing 425,000 square feet of finished space and 50,000 square feet of unfinished space on one unobstructed floor), together with some 58 acres of land, is available for \$8.5 million. The Department could not ignore the potential savings which might result from the acquisition and modification of this alternative site, we ordered, with the General Services Administration, a thorough evaluation of this facility. According to the findings of the study, the acquisition and renovation of this facility would result in estimated savings of \$25 million for the Federal Government over the cost of acquiring the site and constructing a new Mint on the Park Hill site. In addition, by acquiring the existing facility, it appears to us that the Department could save about two years in placing the new coinage facility into operation.

If we were called on to make a purely business judgment as a private company could, we would have to conclude that the acquisition of the existing Littleton facility is preferable to constructing an entirely new Mint at the Park Hill site. We do, at the same time, fully realize that, as a Department of the Federal Government, there are numerous legal complications that could effectively delay the completion of the adaptation of the Littleton facility for use as a Mint for years, particularly litigation over the adequacy of any environmental impact statement that we might file. While we believe that any environmental impact -- social, economic or otherwise -- of relocating the Mint from downtown Denver to outside the city limits is far outweighed

by the cost savings, we realize that Congress, in which the ultimate selection responsibility rests, may feel differently. While we are recommending the Littleton facility, our real need is a new Denver Mint, and we cannot afford to be tied up in litigation for years and years defending this choice. We therefore propose the approval of S. 1339 and H.R. 5620, Mr. Chairman, but with the addition of an amendment, which would enable the Mint to acquire the Littleton facility.

If the Congress believes, as we do, that the potential savings in both time and money warrant the selection of the Littleton site, then I draw your attention to section 2 of H.R. 5620, as passed by the House. This provision, since it contemplates new construction, would be inconsistent with the acquisition of an existing facility. Thus, if the Littleton site is to be acquired, then perhaps H.R. 5620 should be further amended by adding a new section 3 along the following lines:

Notwithstanding any other provision of this Act, if negotiation to that end can be concluded, the Secretary of the Treasury is directed to acquire an existing plant and associated real property in the Denver, Colorado area and the appropriations authorized by the first section of this Act shall be available for such acquisition and the subsequent conversion and equipping of such plant for use as a coinage facility.

Such language would recognize that the Government may not necessarily be successful in negotiating the purchase of the Littleton plant and site because it may no longer be on the market when appropriations become available, or because the owners may not be agreeable to a sale to the Government. However, if the site can be acquired, the Congressional direction will assure that the acquisition can proceed without further delay.

The Committee may also wish to address itself in its report to the need for further consideration of environmental concerns. The previous environmental impact statements fully dealt with the matter. While the most recent statement primarily related to the Park Hill site, most of the discussion is applicable to a Mint anywhere in the Denver area. In addition, we have made a preliminary examination of the environmental factors associated with the possible use of the Littleton facility and concluded that there would be no significant adverse environmental effects under this proposal. Thus, the Committee may wish to affirmatively state its satisfaction with the analysis as its basis for directing that the Littleton site be acquired.

Such modification in H.R. 5620, in the Department's view, is necessary so that we may acquire the Littleton site without delay. Nevertheless, Mr. Chairman, if the Committee feels it is not prepared to amend the House-passed bill, we, alternatively, recommend that it vote favorably on H.R. 5620 as it now reads. Passage of H.R. 5620 in its present form would, at least, enable us to proceed with the construction of a new facility at the Park Hill site.

Before I joined the Treasury Department, when I was practicing law, it was a commonplace occurrence for my clients to be forced to change their capital plans at the last minute. Having come to Washington two years ago, I find that we have to be just as flexible in planning Government capital expenditures. The only thing that surprises me is the criticism that appeared in the Denver press and elsewhere regarding the motives of those Mint and Treasury officials who, when presented with the Littleton facility, proceeded

to analyze its advantages and disadvantages. Let me assure you, Mr. Chairman, that no matter what decision is ultimately made, our recommendation to the Committee reflects simply the best efforts of dedicated Treasury personnel to spend the taxpayers' money as though it were our own.

This, Mr. Chairman, concludes my prepared statement. I appreciate your patience and the patience of the Committee, and I will be happy to answer and questions you may have.

RECEIVED

Denver, Colo.
Feb. 26, 1976

FEB 27 1976

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

Dear Friend:

If there ever was a time to save dollars - it is now. to-day

I congratulate and thank you in your study and wish to accept the Gates building for the new mint.

I will bet \$200 to you \$100 that you will save more than \$29 million - it will be closer ~~than~~ \$35 million by the time it could be completed in the 1980's

My Best Wishes for your Success.

Joseph L. McKelvey
3645 Eliot St.
Denver, Colo. 80211.

Joseph L. McKelvey
3645 Eliot St.
Denver, Colo. 80211



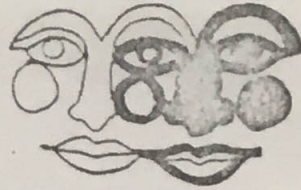
*Taxpayers' Friend
Expertise Mint Official*

RECEIVED

FEB 27 1976

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

Mr. Frank Rhea
Denver Mint Facilities Project Director
Denver, Colo. 80202.



TO: All media
DATE: February 18, 1976
RE: Denver Mint location

for immediate release

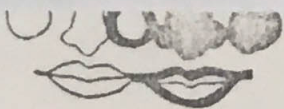
WILL THE MINT TAKE A WHITE FLIGHT TO AN ABANDONED TIRE FACTORY SITE?

Greater Park Hill Community, Inc., categorically opposes any attempt to move the Denver Mint from the designated Park Hill Golf Course location. The fundamental and overruling issue is the federal government's commitment to the inner core city. A 1973 study by the Department of Housing and Urban Development explained why it is essential that the mint be kept in the city of Denver. We agree with Mint Director Mary Brooks who, quoting the HUD study, said that to move the mint outside of Denver would undermine efforts of the federal government to stimulate the rebuilding of the city's inner core.

Though it cannot be converted into a dollars and cents figure, the importance of the mint to Denver cannot be stressed enough. The tourist trade has been a part of this city since 1858. Tourism is the number one industry for the city of Denver and the mint is the number one tourist attraction. If the mint takes a white flight from the core city, all of Denver will suffer and the business community--in particular--will encounter substantial losses.

These factors played a determining role in the original selection of the Park Hill site in 1974. In her endorsement of the Park Hill location, Mrs. Brooks noted that "HUD also emphasized favorable factors for all 475 employees with the mint remaining in Denver, regarding availability of housing, social services and cultural facilities, particularly for the 41% of the present employees who are members of minority groups."

GPHC strongly urges the Senate Banking Committee to consider these costs to the city of Denver, the mint employees, and how much it will undermine other investments



WILL THE MINT TAKE A WHITE FLIGHT TO AN ABANDONED TIRE FACTORY SITE?

the federal government has made to stop the erosion of the inner core city. If Denver loses this important source of revenue, how much of it will have to later be repaid in welfare, income supplement and other federal aid? It is not just a question of how many dollars and cents, but what human costs will have to be paid in the upcoming years.

The Chamber feels that the economic stabilization, aesthetic qualities and prestige of the Mint's physical location in the community are the main factors to be considered in choosing between the alternate sites. These factors clearly favor Park Hill. The community — as a potential work force for the 400 new jobs that will be created after completion and the many employment opportunities available during the construction period. It's struggling retail and service businesses will be aided by the influx of money and people in the area. The presence of the dignified Mint building near the green, open space of the Park Hill Golf Course will be a source of pride for residents of the area.

The environmental impact of relocating to the Park Hill site would be minimal and far overshadowed by the benefits of choosing that site. Based on both the draft Environmental Impact Statement and studies done by the State Air Pollution Control Division, location of the Mint at Park Hill would result in less net additional vehicle miles traveled (VMT) than any other site. Furthermore, the Park Hill area is fully developed and unlikely to face the increased congestion and demands for services resulting from rapid population growth in suburban counties. The Chamber is confident that federal and state strategies for reducing air pollution and congestion in Denver and the Denver Air Quality Control Region will meet with success in the coming years and lessen the already small environmental impact of relocating the Mint.

The United States Mint has long been identified with Denver. Original plans to relocate the Mint on the South Platte River, which the Chamber supports, were designed to establish the Mint's location and provide an economic and aesthetic benefit to an area of the central city. By locating the Mint at Park Hill, these goals can still be achieved. The Chamber urges the Board of the Mint to select the new Mint at the proposed Park Hill site.

DENVER CHAMBER OF COMMERCE
POSITION STATEMENT
RELOCATION OF THE UNITED STATES MINT
March 14, 1974

The Denver Chamber of Commerce, after an examination of the issues, recommends relocation of the United States Mint to the northwest corner of Park Hill Golf Course. The need to relocate this facility offers the Bureau of the Mint a rare opportunity to stabilize a model racially integrated community, to reverse the trends of urban sprawl and flight from the central city and obtain an excellent site for its operations. The Park Hill site has easy access, available housing, excellent transportation facilities, a pleasant environment with a commanding view of the mountains, and an enthusiastic receptive community. Its location in the City of Denver is important from a historical and traditional viewpoint.

The Chamber feels that the economic stabilization, aesthetic qualities and prestige of the Mint's physical location in the community are the main factors to be considered in choosing between the alternate sites. These factors clearly favor Park Hill. The community has a potential work force for the 400 new jobs that will be created after completion and the many employment opportunities available during the construction period. It's struggling retail and service businesses will be aided by the influx of money and people to the area. The presence of the dignified Mint building near the green, open space of the Park Hill Golf Course will be a source of pride for residents of the area.

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GREATER PARK HILL
COMMUNITY, INC.



2823 Fairfax Street, Denver, Colorado 80207 / (303) 388-0918

RECEIVED

FEB 23 1976

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

Frank W. Rhea
Bureau of the Mint
320 W. Colfax
Denver, Colo. 80204



TELEGRAPHIC MESSAGE

Mrs. Higley - Denver

NAME OF AGENCY Department of the Treasury Bureau of the Mint	PRIORITY ACTION INFO	SECURITY CLASSIFICATION Unclassified
ACCOUNTING CLASSIFICATION 2061616	DATE PREPARED 2/25/76	TYPE OF MESSAGE ☐ TELETYPE ☐ BOOK ☒ MULTIPLE ADDRESS
FOR INFORMATION CALL NAME Jim Parker		PHONE NUMBER 5011
THIS SPACE FOR USE OF COMMUNICATION UNIT		

MESSAGE TO BE TRANSMITTED (Use double spacing and all capital letters)

TO:

(See list attached)

IN RESPONSE TO YOUR REQUEST TO SECRETARY SIMON TO DISCUSS THE LOCATION OF THE DENVER MINT, I WOULD LIKE TO INVITE YOU TO MEET WITH ME AND OFFICIALS OF THE MINT ON THURSDAY, FEBRUARY 26 AT 5:00 PM IN ROOM 4121, MAIN TREASURY BUILDING, 15TH AND PENNSYLVANIA AVE., N. W., WASHINGTON, D. C. THIS WILL BE AN OPEN MEETING AT WHICH ANYONE MAY SHARE ANY VIEWS THAT HE OR SHE HAS REGARDING ITS LOCATION.

(signed)

DAVID R. MACDONALD
ASSISTANT SECRETARY
(ENFORCEMENT, OPERATIONS
AND TARIFF AFFAIRS)

*Gov. Lamont
Hon. Brown
Mayor McNichols
Commerce City
Fed. Bryant
Gov. Lohme*

*Rev. Allen Phillips, Chairman,
East Denver Ministries
Alliance Action Committee
Chairman, PUSH*

PAGE NO.	NO. OF PAGES
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SECURITY CLASSIFICATION

Rec'd via telecopier, 2-25-76, @ 1:30pm

CEIVED

EB 24 1976

Colorado Social Legislation Committee

938 Bannock St. • Denver, Colorado 80204

OFFICE OF
SUPERINTENDENT

February 20, 1976

Phone: 892-6857

MINT AT DENVER

TO: Denver-area Public Officials, RE: Location of Denver Mint:
Legislators, and Concerned Social and Fiscal Consequences
Citizens

FROM: Colorado Social Legislation Committee

For several decades the U.S. Government subsidized the exodus of upper and middle-income Anglo families to the suburbs via low-interest FHA and VA loans. It was one of the factors creating a demographic and socio-economic imbalance in Denver, as in other cities throughout the country.

As an example of the imbalance created by federal, state and private policies, median income of households in 1975 in Arapahoe County (where under a recent proposal the new Denver mint is to be located) was \$15,428, vs. \$10,494 in Denver.*

Recognizing that Denver's vitality is of importance to the whole State the Regional Office of HUD, the Denver Chamber of Commerce, and various other private and public groups recommended in 1974 that a new U.S. Mint be in the city of Denver, following historical precedent.

Apparently there were other sound reasons for this decision:

- 1) Tourism: The proposed Denver Mint site would be near established Tourism centers: Stapleton Airport, the Denver Zoo, City Park, Museum of Natural History, Park Hill and City Park golf courses. In Littleton in Arapahoe County the Mint would not be near any established tourist attraction.
- 2) Employees: The Denver Mint has one of the best records of any U.S. agency in equal employment. About 40 per cent of its employees are members of minority groups. There is housing (both home and rental) available in a variety of price levels near the Denver site--whereas Littleton has little low-income housing, and would require long, costly commuting to and from work.
- 3) Transportation and Ecology: The Denver site can be reached by established bus lines, convenient for employees and tourists, making possible the prevention of pollution resulting from long car or bus trips.

In the opinion of members of the Colorado Social Legislation Committee, however, there are even more important considerations. This Committee, consisting of people and representatives of organizations of widely different backgrounds, has long had a concern with the economic health of areas where the poor are concentrated: sparsely populated rural areas, and core cities.

We are concerned that moving the Mint now to an affluent suburban area like Littleton and Arapahoe county may be interpreted as one more U.S. Governmental anti-core city, anti-integration move.

Though there may be temporary, short-term savings in the Littleton site the long-term costs in continuing policies detrimental to a core city may be far greater. We have seen what such policies can cost in such cities as New York, Detroit and others. The ultimate cost will be borne by all tax-payers, including businesses and affluent suburbanites.

Even more important, in this Bi-Centennial year, it appears to us the U.S. Government would welcome an opportunity to locate a major facility in a multi-racial, stable, attractive, integrated area of the city. It can be a national demonstration to tourists that the U.S. Government still believes in the American tradition of people of different economic and racial backgrounds working and living together in a hospitable neighborhood.

More background data on back sheet.

Very sincerely,

Sister Loretto Anne Madden

*Income Statistics from
Colorado Division of Housing,
based on 14 U.S., State and
business economic and Census indicators

Sister Loretto Anne Madden
Chairperson, Colorado Social
Legislation Committee

Colorado Social Legislation Committee -2- February 20, 1976

Additional background information on Denver Mint:

This is not a partisan issue. Representative Patricia Schroeder, who represents the Denver Congressional District, and all three of her potential Republican opponents (John Gonce, Ted Bryant and Don Friedman) are united in their desire to retain the Mint in Denver as recommended by HUD.

The U.S. Government has already spent over \$1.5 million in acquiring the Denver site (not counting costs of environmental impact statement time spent by HUD and Mint personnel, exploring costs of other proposed, and discarded, possible locations).

The Denver City Government has already spent over \$2,093,000 on the new site, preparation, moving part of the golf course near it, acquisition etc. If the Mint site is moved, this amount will be wasted -- and financially-strapped Denver cannot afford this kind of futile expenditure.

According to the Littleton Independent, if the now commercial, tax-producing Gates site becomes tax-exempt as a possible new Mint site, Arapahoe county could lose more than \$1.4 million property tax base.

The Littleton school district would lose \$93,365 and other losses would affect local governments in Littleton, South Suburban, and other areas.

It appears unlikely that U.S. Impact Aid money will make up for the schools' loss, because few Mint employees are likely to be able to move to Littleton.

Denver, with only 42 per cent of the four largest metro counties' population, has more than 71 per cent of the four counties' families on public assistance, more than 61 per cent of those on social security and 57 per cent of families with incomes below \$3,000 a year, according to data from the Denver Planning Office.

It appears to us, that the annual Mint payroll, and the spin-offs from Mint visitors (3800 a day in summer months) is needed far more in Denver, than in Littleton, where unemployment is significantly lower than in Denver.

The following persons have participated in deliberations concerning the positions expressed in the accompanying letter at the February 17, 1976 meeting of the Colorado Social Legislation Committee meeting held at noon at the First Baptist Church, 14th and Grant.

Marie E. Algor

Lyle Petersen

Commission on the Disabled

Ingo Antonitsch

Commission on the Disabled

Sister Diane Rich

Colorado Catholic Conference

Bea Branscombe

Research, Social Concerns Committee

Colorado Episcopal Church

Mary C. Sell

Gray Panthers

Ethlyn Christensen

Denver Commission on Aging

Nancy Swank

Kenneth Tharp

Anne Fennerty

Gray Panthers

Roberta Urban

Greg Flebbe

Justice and Peace Commission

Alice Zwanzig

St. Paul Lutheran Church

Angeline D. Heaton

Bob Gonring

Green Mountain Parish Com.

Sue Hines

Denver Catholic Community Services

Tom Kanan

Denver Dept. of Social Services

Sister Loretto Anne Madden

Colorado Catholic Conference

Tim McKenna

Justice and Peace Commission

Bernie Meyer

Denver Catholic Community Services

Mary Lou Parmelee

Washington Park United Church of Christ

Community Cooperation

Betty Proctor

Jefferson County Dept. of Social Services

BY AUTHORITY

RESOLUTION NO. 9

SERIES OF 1976

INTRODUCED BY

THE ENTIRE COUNCIL

A RESOLUTION

URGING RETENTION OF THE UNITED STATES MINT WITHIN THE CITY AND COUNTY OF DENVER, AT THE SITE ALREADY ACQUIRED, ALTERED AND RESERVED, IN PARK HILL.

WHEREAS, the United States Mint, after choosing a site in the Park Hill area of Denver for relocation of the Denver Mint, invested \$1.5 million in land acquisition at the new site; and

WHEREAS, acting in good faith after the selection of the new site for the Denver Mint, the City and County of Denver has expended \$433,816.12 and has contracted for an additional expenditure of \$33,307.90, for a total of more than \$466,000 for alteration of the Park Hill Golf Course, to accommodate the Denver Mint at its new location; and

WHEREAS, having relied upon the selection of the Park Hill site for the new Denver Mint, and having acted accordingly, officials of the City and County of Denver were shocked and astonished to learn recently that another location, at a suburban site outside of the City and County of Denver, was being seriously considered by Federal officials for a facility that would be known as the "Denver Mint;"

NOW, THEREFORE,
BE IT RESOLVED BY THE COUNCIL OF THE CITY AND COUNTY OF DENVER:

Section 1. That the Council of the City and County of Denver hereby urges retention of the new Denver Mint within the City and County of Denver, at the site already acquired, altered and reserved, in the Park Hill area of Denver.

Section 2. That the Clerk of the City and County of Denver shall attest and affix the seal of the City and County of Denver to this resolution, and that copies hereof be transmitted to the Colorado Congressional delegation and to the Director of the Mints.

PASSED by the Council

February 17, 1976

Larry Perry

- President

APPROVED:

William J. ...

-

Mayor

February 18,

1976

ATTEST:

J. J. ...

Clerk and Recorder,
Ex-Officio Clerk of the
City and County of Denver



RESOLUTION NO. 7
SERIES OF 1976

INTRODUCED BY
THE ENTIRE COUNCIL

A RESOLUTION

URGING RETENTION OF THE UNITED STATES MINT WITHIN THE CITY AND COUNTY OF DENVER, AT THE SITE ALREADY ACQUIRED, ALTERED AND RESERVED, IN PARK HILL.

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PASSED by the Council February 17, 1976

Larry Perry - President

APPROVED: William J. ... - Mayor February 18, 1976

ATTEST: J. J. ... Clerk and Recorder,
Ex-Officio Clerk of the
City and County of Denver



BY AUTHORITY

RESOLUTION NO. 7
SERIES OF 1976

INTRODUCED BY
THE ENTIRE COUNCIL

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NOW, THEREFORE,
BE IT RESOLVED BY THE COUNCIL OF THE CITY AND COUNTY OF DENVER:

Section 1. That the Council of the City and County of Denver hereby urges retention of the new Denver Mint within the City and County of Denver, at the site already acquired, altered and reserved, in the Park Hill area of Denver.

Section 2. That the Clerk of the City and County of Denver shall attest and affix the seal of the City and County of Denver to this resolution, and that copies hereof be transmitted to the Colorado Congressional delegation and to the Director of the Mints.

PASSED by the Council

February 17, 1976

Larry Perry - President

APPROVED: William J. ... - Mayor February 18, 1976

ATTEST: J. J. ... Clerk and Recorder,
Ex-Officio Clerk of the
City and County of Denver



RESOLUTION NO. 9
SERIES OF 1976

INTRODUCED BY
THE ENTIRE COUNCIL

A RESOLUTION

URGING RETENTION OF THE UNITED STATES MINT WITHIN THE CITY AND COUNTY OF DENVER, AT THE SITE ALREADY ACQUIRED, ALTERED AND RESERVED, IN PARK HILL.

WHEREAS, the United States Mint, after choosing a site in the Park Hill area of Denver for relocation of the Denver Mint, invested \$1.5 million in land acquisition at the new site; and

WHEREAS, acting in good faith after the selection of the new site for the Denver Mint, the City and County of Denver has expended \$433,816.12 and has contracted for an additional expenditure of \$33,307.90, for a total of more than \$466,000 for alteration of the Park Hill Golf Course, to accommodate the Denver Mint at its new location; and

WHEREAS, having relied upon the selection of the Park Hill site for the new Denver Mint, and having acted accordingly, officials of the City and County of Denver were shocked and astonished to learn recently that another location, at a suburban site outside of the City and County of Denver, was being seriously considered by Federal officials for a facility that would be known as the "Denver Mint;"

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Larry Perry - President

APPROVED: William H. H. H. - Mayor February 18, 1976

ATTEST: J. J. Teragline Clerk and Recorder,
Ex-Officio Clerk of the
City and County of Denver



MEMORANDUM

February 14, 1976

TO: Frank H. MacDonald, Acting Director of the Mint

FROM: Frank W. Rhea, Facilities Project Manager, Bureau of the Mint

SUBJECT: Technical Evaluation of the Gates Rubber Company Facility in Littleton, Colorado, for Possible Use as a New Denver Mint

1. Nature and Purpose of Evaluation

During the period February 9 to 14, 1976, a large team of professional individuals from the Bureau of the Mint and the Denver Region of the General Services Administration studied and evaluated the Gates Rubber Company facility in Littleton, Colorado to determine the feasibility of using this plant as the new Denver Mint. This evaluation was based on the design criteria for the new Denver Mint and any other pertinent planning data that have been accumulated for the new Denver Mint project over the past four years. The evaluation was conducted in two parts as follows.

a. Bureau of the Mint personnel evaluated the building in detail to determine its overall suitability to meet the criteria of the proposed new mint. This evaluation included making block-type layouts of all production equipment areas and mint special features to fulfill the production parameters and other criteria previously established for the new mint. These layouts and examinations by the Mint team were used to define additions and improvements required to make the Gates facility comparable to the planned mint at Park Hill.

b. The General Services Administration team evaluated the grounds, the building and the building systems with reference to the quality of these features, to determine the extent and cost of modifications that would be required to accommodate all mint production equipment and special requirements, and to define any necessary repairs or improvements to bring the facility into like-new condition. Reports from the various elements of the Bureau of the Mint team making the evaluation are attached. The extensive General Services Administration report of its evaluation is at Tab A.

2. Summary of Findings

a. Bureau of the Mint

After thorough examination of all aspects of the Littleton facility, the Bureau of the Mint has determined that the subject facility, with modifications and additions, would be ideal for use as the new Denver Mint. Production equipment layouts have been completed by

different elements of the Denver Mint staff, all of which show that this facility would accommodate our production equipment and special requirements in an excellent manner. It is almost as if this facility had been designed as a mint. Admittedly, some modifications and alterations to the facility would be required to accommodate mint special criteria such as coin storage, public visitors, additional security, additional interior utilities and noise control. All of these items have been identified and reported to the General Services Administration, and GSA has included costs for the necessary modifications and additions in their cost estimates.

b. General Services Administration

The General Services Administration team has examined the structure in detail in comparison with the new mint design criteria and all applicable federal specifications, codes and requirements. GSA has determined that, in general, the Littleton plant is an excellently designed and constructed modern industrial facility situated in an appropriate aesthetic setting. The General Services Administration has identified some repairs and improvements to the building and grounds that would be required to place the facility in a like-new condition. These are items such as roof repairs in about five years, provision of positive drainage away from the building, minor repairs to floors, and cleaning and repainting of portions of the interior. All of these items have been included in the General Services Administration cost estimates. In addition, as stated previously, GSA has estimated costs for utilities expansions, additional interior office space and shops, partitioning, coin storage vaults, public visitors accommodation, acoustical treatment and other items to meet all requirements for the planned new Denver Mint. GSA has concluded that this structure with these modifications and improvements would be ideal as a new mint.

3. Cost Comparison

The General Services Administration has reviewed their estimate for construction of the mint at the Park Hill site, which includes costs of the land, the buildings and site development. This estimate, which was prepared as of January 1, 1975, has been revalidated in the amount of \$46.7 million. Similarly, GSA has prepared estimates for all of the modifications, additions and improvements which would be required to complete the Gates facility as a mint in a like-new condition. This cost estimate, including an allowance for contingencies and a cost escalation factor to the midpoint of the construction period, is \$. Adding this to the acquisition price of \$8.5 million produces a total estimated cost for a new mint in the Gates facility of \$. Thus, the estimated savings in using the Gates facility versus constructing a new mint at Park Hill is \$.

The above cost comparisons do not include the costs of procuring, relocating, and installing production equipment and materials handling systems, as these costs would be the same for the new mint at either

location. These production systems costs are estimated at \$18 million, which added to the \$47 million buildings and grounds costs, results in the estimated cost of \$65 million for the new mint at Park Hill. This estimated cost of \$65 million is the basis of the increased authorization request contained in HR 5620. *ject Manager* DATE: February 13, 1976

4. Conclusions

After completion of detailed analyses of the Gates plant by a team of some 17 professionals from the Bureau of the Mint and the General Services Administration, it is concluded that this plant is very similar to the planned new construction at Park Hill and that with the discussed modifications, additions and improvements, the facility would make an excellent new Denver Mint. The estimated cost savings in proceeding with this alternative are \$1. In addition, by acquiring this facility expeditiously and accomplishing the necessary modifications and improvements, it appears the Bureau of the Mint could save approximately two years' time in completing the new Denver Mint ready for coinage production.

Attachments

Reports from Denver Mint:

Assayer/Quality Control Office
Building & Mechanical Division
Coining Division
Safety Office
Security Office

GSA Report (Tab A)

Charles E. Salasri
Charles E. Salasri
Safety Manager

UNITED STATES GOVERNMENT

Memorandum

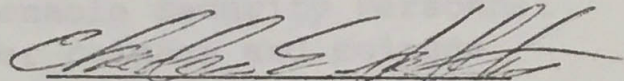
TO : Frank W. Rhea, Facilities Project Manager

DATE: February 13, 1976

FROM : Charles E. Saletri, Safety Manager

SUBJECT: Evaluation of Gates' Facility

Comment from the standpoint of safety must be limited, because most of the safety aspects will involve moving equipment to the work site, layout, etc. There were no problems in the safety area noted at the subject site as it now stands. There are no problems anticipated from a safety standpoint.



Charles E. Saletri
Safety Manager

1. Install Security door between production area and Administration area.
2. Provide better guard post Control Room, located than present Control Room and located in secured production area.
3. Install larger Security Control Console to include hold lights to show when vaults etc. are left open for working parties. Console to include extra blank stations for future installations.
4. Install complete closed circuit television to cover interior and exterior of building. Camera's route and positioned with cameras in Control Room.
5. Vault alarms and telephone to Control Room from vaults.
6. Install new covered wiring on alarm or install alarm which will activate if wires are cut.



GATES PLANT - LITTLETON

Security Survey

On the 10th of February 1976, a survey of the Gates Plant located in Littleton, Colorado was conducted relative to determining the feasibility of the Government purchasing the Gates Plant as a site for the Denver Mint.

From a Security standpoint it was determined that the Gates Building would with some alterations be ideal for the requirements of the Mint. The building is adequate, both structurally and space wise.

The production area is ideally isolated from the Administrative Area which would enable Security Personnel to maintain tighter control over coinage and coinage materials.

Recommended Security alterations and additions are as follows:

1. Install Security door between production area and Administration area.
2. Provide bullet proof Control Room, larger than present Control Room and located in secured production area.
3. Install larger Security Control Console to include hold lights to show when vaults etc, are left open for working parties. Console to include extra blank stations for future installations.
4. Install complete closed circuit television to cover interior and exterior of building, visitor's route and perimeter with monitors in Control Room.
5. Vault alarms and telephones to Control Room from vaults.
6. Install new covered wiring to alarms or install alarms which will activate if wires are cut.

7. Provide emergency power supply to operate alarms and Security telephones in case of power failure.
8. Build Metal Detector scannin and search room.
9. Provide Guard's locker and Briefing Room with Secure Weapons Storage and Issue Room.
10. Include Firing Range for Guards with reserve weapon, target and ammunition storage room.
11. Provide offices for: Security Officer
Capt. of the Guard
Security Secretary and files.
12. Install Intrusion Detector System for perimeter fence and water, gas and oil storage areas to alarm on Control Panel.
13. Build two Guard houses within the fenced area of perimeter.
14. Install new walk-thru Metal Detector.
15. It is recommended that consideration be given to providing a locker area outside of the Metal Detector wherein all employees would be required to leave all coins and other metal objects before going into the production area. Vending machines are available which will operate with tokens purchased from a dispenser. This would eliminate employees using coins from the production area in vending machines and prevent removal of new coins which are in circulation, from the Mint

D. Q. Permenter

D. Q. Permenter
Security Officer

UNITED STATES GOVERNMENT

Memorandum

TO : Frank W. Rhea, Facilities Project Manager

DATE: February 13, 1976

FROM : H. Frost, Jr., Assayer and Leon G. Wittner, Quality Assurance Specialist

SUBJECT: Evaluation of Gates' Facility for New Mint

We, Messrs. Frost and Wittner, made a complete inspection of the proposed facility. The following is a listing of our thoughts as to what would be necessary in order to install a coining production plant. The plant as is comes very close to a plant design that would be produced by any competent engineering/architectural firm.

1. There will have to be additional lighting.
2. Probably need more heat in the east end. However, if we put 30,000 sq. ft. of vaults in the east end, we won't need heat.
3. The equipment would lay out beautifully -
 - a. Storage for coils, blanking presses and scrap storage in the west section.
 - b. Annealing - storage - upsetting - storage - coining - storage - count and review - will all fit into the center section.
 - c. Cash and deposits and vaults for finished coin storage will fit into the east section.
 - d. The machine shop and all of its support shops will go nicely into the tower space. There is room for auxiliary facilities at specific locations all along the manufacturing line.
4. The administrative area is adequate for the Superintendents, Accounting, Personnel, etc.
5. The balcony offices in the center section would serve Coining.
6. New office or administrative space would have to be installed for:
 - a. Assaying and Quality Control.
 - b. Coin shipping crew.
 - c. Security.



- d. B & M Offices.
 - e. Blanking and Receiving Offices.
 - f. Cubicles would be needed at critical locations along the manufacturing line - say six 10' x 12'.
7. We would have to build in especially -
- a. Lunch room.
 - b. Tourist and Numismatic Room.
 - c. Protected pathways for tourists (elevators or escalators?).
8. Construction correction or addition -
- a. 10' x 10' x 4' foundations for the blanking presses.
 - b. It would be necessary to make a complete study of the materials handling problem - cranes, forklifts, surge bins, automatic lines, etc. However, the 22' ceiling height would be sufficient for whatever is needed.
 - c. Plumbing (water, drains, chemical correction and settling tanks) would have to be provided for the Annealing Section.
 - d. There would have to be considerable money spent for acoustical treatment.
 - e. It is possible that piping, ventilation and utility lines will have to be raised or changed. This can only be determined by a finished layout. Cost would be small.
 - f. We would have to build a central warehouse and storage area. This would probably be located on the second floor of the west section. We would probably complete the second level floor.
- We would need a passenger elevator to service this facility. This would be in addition to the present 20-ton freight elevator. This additional elevator should serve both second and third floors.
- g. The 7,200 sq. ft. third floor on the west end might be used for a cafeteria. It would be ample in size. It would require utilities and air conditioning.
 - h. It would be necessary to install additional locker and washroom facilities. Additional facilities should probably be on mezzanines, in order to avoid digging up the floors for sewer lines.
 - i. Security would have need of additional fencing and guardhouses.

j. We would need a high security die vault in the center section near the Coining Offices - say 15' x 30'.

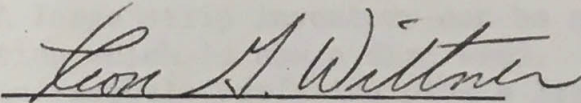
k. We would probably need pits for floor scales; at least one for Count and Review and probably two for the Blanking Area and one for the Process Weigh (distribution) crew.

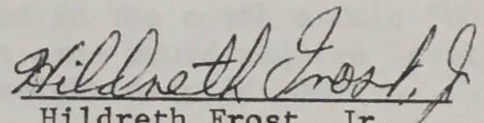
l. The Annealing Area would have to be shut off from the rest of the building. This would require additional ventilation and wall. Heat from the annealers could probably be recirculated to heat the whole Annealing Area, and save on the general heating total.

CONCLUSION

This is at least a list of things we noted in our plant inspection. The building, the layout, the utilities, would serve admirably as a new coining facility.

NOTE: It should be noted that \$.5 million for 425,000 sq.ft. of useful space would be \$20 per sq. ft. It would be impossible today to build equivalent space for less than \$40. The cost might go as high as \$60 per sq. ft.. In any event, \$20 per sq. ft. is a steal.


Leon G. Wittner
Quality Assurance Specialist


Hildreth Frost, Jr.
Assayer, P.E. 1403 Colorado

UNITED STATES GOVERNMENT

Memorandum

TO : Frank Rhea
Facilities Project Manager

DATE: February 13, 1976

FROM : William H. Darlington *WHD*
Sup't., Coining Division

SUBJECT: Gates Facilities

The attached summary report, in comment form, is a result of detailed equipment layout planning on the part of W. Summers and R. Lord after a visit to the Gates Littleton plant and studies of available plant drawings.

You are welcome to discuss this planning and review the layout in my office for further clarification.

RECEIVING AND SHIPPING OF COINAGE METAL

1. There are adequate facilities for truck and rail handling of strip and scrap metal.
2. A large strip inventory can be stored in the south middle "U" section which is now a dirt area. This area would require leveling and asphalt surfacing plus a light-weight plastic roof.

STRIP BLANKING

1. The area for storing coils and scrap is suitable.
2. There is plenty of space between equipment.
3. Head room is sufficient for overhead cranes.
4. The area will require isolation and acoustical covering to control the noise level. Movable acoustical panel can be placed between blanking presses.
5. Press foundation may need thicker pads to take impact loads.

BLANK ANNEALING AND CLEANING

1. The equipment and the blank storage areas appear to be adequate.
2. Head room for hoists is close but enough.
3. This area will require enclosing so it can be extensively ventilated to remove heat, dust and fumes.



BLANK SCREENING

1. Equipment, blank storage and head room are sufficient.
2. The area must be enclosed because of dust and noise.
3. The area will require special ventilation and an acoustical treatment.

UPSETTING MILLING (RIMMING)

1. Equipment, material storage and head room are satisfactory.

COIN PRESS AREA

1. The area is ample for equipment and material storage.
2. Head room is sufficient for hoists.
3. The area will require extensive acoustical treatment to reduce the noise level. The entire ceiling and possibly some acoustical walls will be necessary.
4. Die vaults and tool cribs can be spaced along the north wall to reduce walking distances.
5. An elevated supervisor's office would be necessary.
6. Several small phone booth offices should be located at intervals along the press rooms.
7. Several small acoustical rooms to screen coins. Must be well ventialed to control dust.

COUNTING AND BAGGING

1. The area is extensive enough to accommodate the equipment and storage needs.
2. Head room is adequate.
3. An overhead office will be needed and several small offices on the floor.
4. Need room along north wall for storing and processing coin bags.

PROOF COIN AND MEDAL PRODUCTION

1. The second floor area in west wing is adequate for proof coin and medal manufacture.
2. The unfinished portion of floor will require pouring.

CONDEMNED COIN AND BLANK MELTING

1. The third floor area in the west wing is adequate for the melting.

CONDEMNED COIN AND BLANK MELTING, CONT.

2. The area will require ventilation.
3. The unfinished portion of floor will require pouring.

GENERAL ENVIRONMENTAL CONDITIONS

1. Illumination is inadequate for inspection of coins and blanks through the entire process.
2. Large heating and ventilating ducts throughout the building are too low and must be raised at least 10 (ten) feet.
3. Acoustical material should cover all ceilings and walls to reduce reverberation. The Blanking Press area should be isolated with acoustical walls. The Coin Press area should have several acoustical walls between sections to reduce the background noise. All screening areas should be acoustically isolated.
4. Need central office for Coining Division.
5. Need more shower, locker and toilet facilities.

MATERIALS MOVING

1. Adequate cranes or monorails will be required at all equipment in the coining process.

CONCLUSION

The overall conclusion reached is that the building and support features at the Littleton site are well suited for minting operations, of the scope intended, without major alterations.

UNITED STATES GOVERNMENT

Memorandum

TO : Mr. Frank Rhea
Facilities Project Manager

FROM : *Duane R. Sjaardema*
Duane R. Sjaardema, Supt., Building & Mechanical Division
Barney Neal, Mechanical Engineer *BN*
Al Vaitaitis, Electrical Engineer *AV*

SUBJECT: Gates Plant Evaluation

DATE: February 13, 1976

We have evaluated the Gates manufacturing facility in Littleton, Colorado, regarding its functional acceptability for coin manufacturing operations. The basis for our evaluation was the criteria developed for the new Mint to be constructed in the Denver metropolitan area, originally on the Platte River Site, later on the Park Hill Site.

EXTERIOR

The Gates plant has a chain link fence enclosing three sides of its perimeter. A gate is located at the southeast corner and an electrically operated gate with equipped guardhouse at the southwest corner. This enclosure is adequate for security purposes.

Exterior lighting is provided surrounding the building and is adequate for security purposes.

The landscaping provides an attractive setting for the building and is irrigated by an installed, underground, automatic sprinkler system. All areas open to public view are attractive and need no modification. A flag pole is installed.

Additional visitor's parking may have to be provided at the northwest corner of the building.

The rear courtyard is not surfaced. Surfacing of this area may be required at some future date to provide outside coil storage, standby equipment storage, steel and pipe storage and vendor (salesperson) parking.

We believe the rail access provided to southwest dock area and the roadways provided to the southwest and southeast dock areas are adequate for our projected needs.

DOCKS

The covered dock between columns 6 and 12 is proposed for coil (strip) receiving and scrap shipment by either truck or rail.



A rail dock leveler exists. We propose the addition of truck dock leveler for installation between columns 11 and 12 and a blacktopped and concrete apron to this area. One overhead door in this area has an electric operator. We propose an additional door be so equipped.

We propose the dock area between columns 12 and 15 for shipping and receiving of indirect materials for the Storeroom. One dock leveler for truck usage would be required and the door between columns 13 and 14 would have to be equipped with an electric operator.

We propose that the docks between columns 39 and 40 and columns A and B be used for coin shipping. Dock levelers for truck usage would be required at one door to the south and one door to the east with electric operators on these two doors. The precast panel adjacent to the doorway at column B has been cut to provide additional door width for equipment removal. After the installation of Mint equipment was completed, it would be necessary to replace this precast panel or modify the overhead door to encompass the additional width. The opening is presently covered by a piece of plywood.

The doors are 8 foot wide by 12 foot high. This is adequate for all of our present equipment to be brought in and for daily operation. Should larger equipment be installed in the future, the precast panels can be removed and reinstalled relatively easily (there is evidence that this has been done on previous occasions with two panels on the west side) providing access for almost any size of equipment that could be transported to and installed in the building.

There are adequate walk-in doorways located around the perimeter of the building. We propose adding one walk-in doorway from the courtyard to the area between columns B and B5 and columns 12 to 15.

SECURITY

We feel the present control room for security purposes will have to be expanded and relocated.

The exterior emergency exit doors are monitored. Additional monitoring has to be added to the large overhead doors, and the door monitoring system should be improved. The present monitors indicate one level of alarm that security has been broken. We recommend a three level monitor be used to indicate satisfactory security (green), door open but recognized (yellow) and unauthorized broken security (red). The modified system could probably utilize the existing circuitry and conduit and wiring runs.

We believe the fire monitoring and plant process and utility monitoring systems are adequate.

ADMINISTRATIVE OFFICES

The north administrative office structure is somewhat limited. We recommend that the unfinished section on the second floor be completed using a similar floor construction to the computer style flooring used throughout the remainder of the office structure.

Our proposed usage of this office structure is for Personnel Division, Superintendent, Deputy Superintendent, EEO, Accounting Division and Dispensary. We propose that the existing lunchroom be used as is with vending machines and be limited to employees located in this office complex. We also propose that this be a low security area with the primary control station for employee screening to be located at the entrance from this area to the production facility. A new wall would be required across the south exterior of the office area at the entrance to the plant. The projected office requirement is approximately 15,000 sq. ft., 20,000 sq. ft. is available.

PROCESS FLOW

We visualize direct material flow from the covered dock between columns 6 and 12 thru the existing receiving area. The scale, office structures and elevator (20,000 lbs. capacity) are adequate for this function. The area between columns 6 to 12 from column A5 to D5 would be utilized for coil storage. Our requirement was for 20,000 sq. ft., the available space is 30,000 sq. ft. The second level could later be finished (the floor structural framework exists, a concrete floor would have to be poured) for possible slow-moving coil storage and proof coin and medal production. The third level holds the same potential and could be used for metal melting operations.

We propose that the area encompassed by columns D5 to B and columns 6 to 12 be used for the blanking operations for up to 16 blanking presses. Our projected requirement for this operation was 13,000 sq. ft., in excess of 37,000 sq. ft. is available. The floors in both the proposed coil storage and blanking areas are rated for 700 lbs/sq. ft. which is adequate and the condition of the floors is satisfactory except for removing of some curbing and filling in of some pit areas and removal of some Gates equipment and mounting pads.

We also propose that 6' x 6' sections be cut from the floors at each press location and isolated mounting pads equivalent to the 26,000 lb. weight of the press.

The storage areas require no additional utilities or lighting other than existing. The blanking operation requires only process

(compressed air) at 90 psi and electrical power. These are available in adequate quantities in this area. The proposed blanking area is enclosed on three sides by existing walls. It appears relatively easy to engineer proper sound isolation and reduction for this operation.

The area encompassed by B to B5 and 6 thru 16 is proposed for Coining Division office space, Die Storage and coinage related services.

The area encompassed by columns 12 to 15 and D5 to G would be utilized for cut blank storage and in process storage. The proposed requirement for this function was 2,400 sq. ft.; 20,000 sq. ft. is available.

The area encompassed by columns E thru G and 15 thru 21 is proposed for the installation of eight Annealing furnaces. Required for these are floor drains, approximately 1-1/2" diameter for each furnace. The 4" diameter cast iron storm sewers, industrial sewers and sanitary sewers are all adequate; however, a tie-in to the industrial sewer and settling basin is recommended. The air and steam required for this operation are all available from existing distribution systems in adequate quantity. Additional electrical power would be required in this area (see Electrical Power). Also, due to the sensitive nature of the Annealing Furnaces, as far as an electrical power outage is concerned, a stand by diesel generator set should be provided to carry the Annealing loads in case of electrical power failure (see Emergency Power). Each furnace requires 2,500 cfm of exhaust ventilation. The hoods are equipped with fans; therefore, ducts thru the roof and the existing exhaust fans mounted in the roof structure are adequate.

The area encompassed by columns 21 to 23 and columns E to G would be used for in-process storage of annealed blanks. Our projected requirements were 4,000 sq. ft., 6,000 sq. ft. is available.

The area encompassed by columns 23 to 25 and E to G is designated for Upset/Screening operations. The projected requirement was 3,500 sq. ft., 6,000 sq. ft. is available. Electrical power is the only utility required and is available at this location.

The area encompassed by columns 25 to 31 and E to G is proposed for coin press installation. Eight automated lines with triplex overhead conveyor feed to encompass 120 presses is envisioned. Each line could have selected presses running on any of three denominations with this arrangement. A need for additional electrical power seems to exist. The existing overhead utility and power distribution system would be readily adaptable for plug in type of press installations making it possible with a special hydraulic lift transport vehicle to lift a press out of line and transport it to the shop for maintenance, to a training area for training purposes, or to an area for developmental operations. The floor is adequate for the press installation. 21,000 sq. ft. was projected

for this function; in excess of 24,000 sq. ft. is available.

The area encompassed by columns 31 to 35 and E to G is projected for coin counting and bagging functions. 12,000 sq. ft. is our projected need; in excess of 15,500 sq. ft. is available.

The area encompassed by columns 35 to 41 and A to E are proposed for the coin storage and shipping areas to include one level vaults. 30,000 sq. ft. was our projected need; 43,000 sq. ft. is available.

We visualize that office space for each Division would be located within each functional area. Office space of sufficient magnitude already exists in the coil receiving area, the coin storage and shipping area and in other areas so the requirement for additional office space is relatively minimal.

MAINTENANCE

The area encompassed by columns 15 to 32, columns D to E to include B5 to D and 30 to 32 for truck maintenance and battery charging/storage is proposed for the Machine Shop, Electric Shop, Building Maintenance, Metal Working, Preventive Maintenance and Custodial functions. The existing upper level offices in this area are suitable for the Building & Mechanical Division offices, Engineering offices and Maintenance Division Conference Room. Bridge cranes would have to be installed in some shop areas which could be supported from the existing structure or column mounted. A wall should be installed along column E. Total projected space requirements 50,000 sq. ft.; actual space available is 50,000 sq. ft. Electrical power distribution would be designed as part of the equipment installation.

PROCUREMENT/STOREROOM'S FUNCTION

The area encompassed by columns 12 to 15 and A to D5 is projected for the Storeroom, Purchasing Offices, Procurement Division Chief's Office and a Conference Room. Space requirement is 8,000 sq. ft.; space available is 12,150 sq. ft. We envision a vendors parking lot on the west side of the courtyard with a walk-in entrance. This area is adaptable to multi-tiered storage.

ROOF

The roof is of the built-up roofing and gravel construction. It was noted in several places that the gravel fails to cover the asphalt, and there was some bubbling evident. Also, some roof leaks were noted.

However, this type of roof is relatively easily maintained and these problems are easily corrected. This type of roof structure has the added advantage of being readily adaptable to through the roof installations such as ventilation equipment, etc.

TOWER UTILIZATION

The tower lends itself to a multitude of possibilities, including a beautiful conference room with windows overlooking the mountain ranges, additional office space, a data processing center, automated storage and retrieval of slow moving spare parts and indirect materials, engineering offices, etc. The basic framework exists for incorporating up to ten floor levels of space.

FLOOR LOADING

The existing floors throughout the building seem adequate for our needs except in certain areas where curbs will have to be removed, pits filled in and other modifications made. The floors show some cracking and unevenness between sections which would not require immediate repair. The sectional floor system lends itself to easy repair as the need arises. The slab on grade construction is especially suited to our equipment installations and the structural rating is adequate for our needs.

ASSAY LABS

These laboratories already exist in the western section of the building and could easily be expanded in the future as necessary.

POWER PLANT

The existing boiler plant supplying 60,000 lbs/hr at 350 psig is more than ample to supply the heating needs and process steam required for our operations. A smaller backup boiler plant may be considered for future installation. The pad, stack access and control panel space have already been provided for such an installation. The individual thermostatically controlled, steam unit heaters around the perimeter of the facility and the above door heaters at the dock areas appear adequate to supply the building heating requirements. The steam distribution system and pressure controls are adequate for our operations.

The two large air compressors each provide 1,630 cfm at 100 psig, more than the required volume of plant air for Mint operations. The two units can be connected into isolated distribution systems or one large distribution system thru existing piping to cover every piece of the building. No changes are recommended to this system except the possible addition of one or two refrigerated air dryer systems.

FIRE PROTECTION

The building is adequately covered by a fire protection system with its independent water system, a large Diesel powered pumping system, a wet sprinkler system throughout the entire production areas, and smoke sensors in all office areas.

ELECTRICAL POWER DISTRIBUTION

The utility company's service consists of two (2) 13.8 KV underground feeders from different sources. Any one of the two feeders is of more than adequate capacity to carry the entire electrical load, resulting in good reliability.

The main 13.8 KV switch gear has three 1200 amp capacity air circuit breakers, distributing the power to seven (7) substations. Two of the substations provide 2.4 KV service, a voltage level that is not suitable for Mint's equipment, with the exceptions of existing air compressors, utilizing 2.4 KV motors.

The remaining five (5) substations provide a total of 3,825 KVA at 480 volts. The tabulation below summarizes the available and the total transformer capacity requirements.

Total existing transformer capacity	3,825 KVA	
Less existing connected building load	<u>2,500 KVA</u>	
Net available capacity	1,325 KVA	1,325 KVA

Additional Mint requirements:

Manufacturing and support	3,000 KVA	
Additional building load	<u>500 KVA</u>	
Total	3,500 KVA	<u>3,500 KVA</u>

Transformer Capacity to be added: 2,175 KVA

Relating to the preliminary manufacturing equipment layout and the physical locations of the existing five (5) substations, the power shortages seems to exist for Annealing and Coining Press areas. The solution, therefore, would be to add either two (2) substations of approximately 1,000 KVA each, or three (3) substations of 750 KVA each. The addition of two substations would result in a more expensive 480 volt power distribution for equipment installation; three new substations would result in a lower cost of equipment installation. Both alternates can be done, since there is enough space to add up to three feeder units (1200 amp air circuit breakers) to the main 13.8 KV switch gear.

The most economical way perhaps would be to abandon the 2.4 KV substation in the southwest corner, freeing-up one 1200 amp ACB in the main 13.8 KV switchgear. The air compressor presently supplied from this substation can be reconnected to the 2.4 KV substation located near the boiler room. This now available 1200 amp ACB and either one or two new 1200 ACB's could then provide power for the additionally needed transformers.

Generally, the 13.8 KV distribution system is designed and installed by the cheapest method available to meet the electrical codes (interlocked armored cable in open trays). One 13.8 KV feeder supplies a 2.4 KV substation, which, as mentioned above, should be abandoned (sold).

Each of the remaining two (2) 13.8 KV feeders supplies three (3) substations, resulting in a poor reliability. An electrical fault any place on the feeder would shut-down three (3) substations, affecting 30 percent to 50 percent of the manufacturing. It would be desirable to have the new substations which need to be added be supplied by two alternative sources to increase the reliability of the system.

EMERGENCY POWER

An emergency generator, powered by a reliable fuel such as propane or diesel fuel, should be provided. The generator output should be 480 V, 3 ϕ , 4W, 60 Hz, approximately 400 KW. The main purpose of the emergency power generator will be to supply the Annealing operation in case of power failure. Emergency power will also be used for security, intercommunication systems and emergency lighting as required. The emergency system does not have to be of the uninterruptable type.

TELEPHONE

The PBX equipment and 600 lines telephone distribution system have ample lines and service to provide for any present and future anticipated needs.

PLANT INTERCOM SYSTEM

The present public address system using verbal communication should be modified to include a call bell system in addition.

SEWER SYSTEMS

There appears to be adequate storm sewer, industrial sewer and sanitary sewer systems for the Mint's present and future needs.

PLANT VENTILATION

The roof mounted independent gas fueled forced air systems throughout the plant should be more than adequate for present and future needs. The structural frameworks are on the roof for additional installation of units should a need for more ventilation develop. The central location of the controls for these units in the Power Plant prevents employee tampering with these units.

AIR CONDITIONING

The air conditioning system in the office areas appears to be adequate.

TOURIST ACCOMMODATION

The in-line process flow accommodates a tourist walkway located centrally through the production areas from west to east at slightly above press height. A museum, coin sales, rest and exhibit area could be incorporated at the extreme east end of the building in the northeast corner. Some provision would have to be made to return the tourist to the west parking area.

EMPLOYEE SERVICE AREAS

A cafeteria should be incorporated within easy reach of all production areas or two or more lunchrooms equipped with vending machines.

Restroom facilities should be provided for the tourists, probably at the east end of the building.

INCINERATOR

No incinerator facilities are provided. The existing location of the propane vaporizer could possibly be used for this function if this equipment were not used.

CONCLUSION

We believe that the facility is uniquely fitted to our storage requirements, our in-process flow requirements, our space requirements, our utility requirements, our maintenance requirements, and our administrative requirements with little, if any, major modifications. We believe the present Gates building to be more than adequate for our current and foreseeable needs and easily expandable for added functions. We believe this facility will move the transition from our present facilities to newer, more appropriate facilities for a minting operation ahead by at least five years and at a considerable cost savings to the American taxpayer.

Based on our original design criteria, the Gates facility almost duplicates any facility that we would build on the Park Hill Site relative to layouts, space and general construction and design.

We have also made a complete inspection of the proposed facility. The following is a listing of our thoughts as to what would be necessary in order to provide a suitable working plan. The plan as to what we think is a plan that would be produced by our own design engineering organization.

1. There will have to be a parking lot.
2. Properly sized and located for the building, it will be 100 ft. x 100 ft. of area in the shop end, 100 ft. x 100 ft. in the office end.
3. The equipment should be as follows:
 - a. Storage for tools, materials, etc. for the shop end.
 - b. Storage for tools, materials, etc. for the office end.
 - c. Shop and storage for the building end.
 - d. The building end and all of the equipment should be in the shop end. There is room for equipment in the shop end.
 - e. The building end should be adequate for the building end.
4. The building end in the center section should be 100 ft. x 100 ft.
5. The office or administrative space would have to be installed for the building end.
6. The building end should be 100 ft. x 100 ft.
7. The building end should be 100 ft. x 100 ft.
8. The building end should be 100 ft. x 100 ft.
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UNITED STATES GOVERNMENT

Memorandum

TO : Frank W. Rhea, Facilities Project Manager

DATE: February 13, 1976

FROM : H. Frost, Jr., Assayer

SUBJECT: Evaluation of Gates' Facility for New Mint

We, Messrs. Frost and Wittner, made a complete inspection of the proposed facility. The following is a listing of our thoughts as to what would be necessary in order to install a coining production plant. The plant as is comes very close to a plant design that would be produced by any competent engineering/architectural firm.

1. There will have to be additional lighting.
2. Probably need more heat in the east end. However, if we put 30,000 sq. ft. of vaults in the east end, we won't need heat.
3. The equipment would lay out beautifully -
 - a. Storage for coils, blanking presses and scrap storage in the west section.
 - b. Annealing - storage - upsetting - storage - coining - storage - count and review - will all fit into the center section.
 - c. Cash and deposits and vaults for finished coin storage will fit into the east section.
 - d. The machine shop and all of its support shops will go nicely into the tower space. There is room for auxiliary facilities at specific locations all along the manufacturing line.
4. The administrative area is adequate for the Superintendents, Accounting, Personnel, etc.
5. The balcony offices in the center section would serve Coining.
6. New office or administrative space would have to be installed for:
 - a. Assaying and Quality Control.
 - b. Coin shipping crew.
 - c. Security.



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- d. B & M Offices.
 - e. Blanking and Receiving Offices.
 - f. Cubicles would be needed at critical locations along the manufacturing line - say six 10' x 12'.
7. We would have to build in especially -
- a. Lunch room.
 - b. Tourist and Numismatic Room.
 - c. Protected pathways for tourists (elevators or escalators?).
8. Construction correction or addition -
- a. 10' x 10' x 4' foundations for the blanking presses.
 - b. It would be necessary to make a complete study of the materials handling problem - cranes, forklifts, surge bins, automatic lines, etc. However, the 22' ceiling height would be sufficient for whatever is needed.
 - c. Plumbing (water, drains, chemical correction and settling tanks) would have to be provided for the Annealing Section.
 - d. There would have to be considerable money spent for acoustical treatment.
 - e. It is possible that piping, ventilation and utility lines will have to be raised or changed. This can only be determined by a finished layout. Cost would be small.
 - f. We would have to build a central warehouse and storage area. This would probably be located on the second floor of the west section. We would probably complete the second level floor.
- We would need a passenger elevator to service this facility. This would be in addition to the present 20-ton freight elevator. This additional elevator should serve both second and third floors.
- g. The 7,200 sq. ft. third floor on the west end might be used for a cafeteria. It would be ample in size. It would require utilities and air conditioning.
 - h. It would be necessary to install additional locker and washroom facilities. Additional facilities should probably be on mezzanines, in order to avoid digging up the floors for sewer lines.
 - i. Security would have need of additional fencing and guardhouses.

j. We would need a high security die vault in the center section near the Coining Offices - say 15' x 30'.

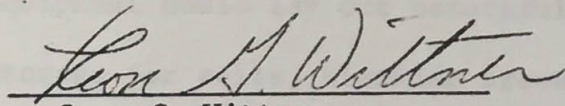
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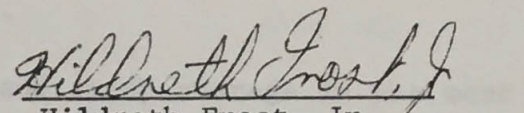
l. The Annealing Area would have to be shut off from the rest of the building. This would require additional ventilation and wall. Heat from the annealers could probably be recirculated to heat the whole Annealing Area, and save on the general heating total.

CONCLUSION

This is at least a list of things we noted in our plant inspection. The building, the layout, the utilities, would serve admirably as a new coining facility.

NOTE: It should be noted that \$8.5 million for 425,000 sq.ft. of useful space would be \$20 per sq. ft. It would be impossible today to build equivalent space for less than \$40. The cost might go as high as \$60 per sq. ft.. In any event, \$20 per sq. ft. is a steal.


Leon G. Wittner
Quality Assurance Specialist


Hildreth Frost, Jr.
Assayer, P.E. 1403 Colorado

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b. Tourist and Numismatic Room.

c. Protected pathways for tourists (elevators or escalators?).

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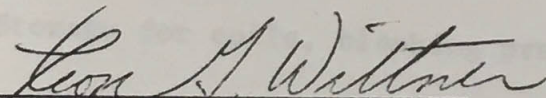
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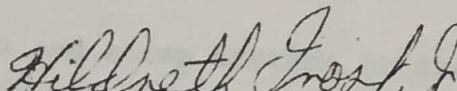
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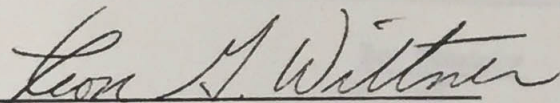
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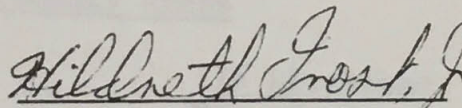
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Hildreth Frost, Jr.
Assayer, P.E. 1403 Colorado

UNITED STATES GOVERNMENT

Memorandum

Frank H. MacDonald, Acting Director of the Mint

TO : Attention Frank W. Rhea, Facilities Project Mgr. DATE: February 20, 1976

FROM : H. Frost, Jr., Assayer (Denver)

SUBJECT: Family Income

"Analysis of Housing in the Littleton Area," prepared by the Department of Community Development of Littleton under a grant from HUD, October 1973, is the most reliable report on average family income and on available and proposed housing. Inflation has, of course, changed money values, but there has been little increase in income or real estate value. Lack of increase is probably due to business recession. The figures of the 1973 report are probably still fairly accurate. This survey is recapitulated as follows:

Income Distribution by Households
for Littleton & Adjacent County Areas

Yearly Income	In County		In Littleton	
	No. of Families	%	No. of Families	%
\$ 0 - \$ 4,000	66	0.7	413	5.1
4 - 6,000	202	2.0	282	3.4
6 - 8,000	168	1.6	592	7.3
8 - 10,000	569	5.6	810	9.9
10 - 12,000	1,234	12.2	1,398	17.1
12 - 15,000	3,256	32.1	2,554	31.3
15,000 +	4,647	45.8	2,117	25.9
TOTAL No. of Families . .	10,142		. . . 8,163	
TOTAL No. of Persons. . .	40,545		. . . 26,626	

Using \$15,000 as the high figure, the approximate family income is:

COUNTY - \$12,700

LITTLETON - \$11,600

These percentages and incomes show a true picture of 90+ percent of the households in the area. However, ten percent of the families have incomes in excess of \$25,000 per year which bring the average overall income up to \$14,600 or more per family. The very high income areas (Columbine Country Club, Bowmar, Normandy Estates and others) do not account for much area and do not affect the incomes and housing conditions as far as the general population is concerned. The large number of wealthy people does



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help the tax structure of Arapahoe County. Employees of the Mint would be at no disadvantage as far as annual income is concerned. They, in general, would be in the top 50 percent as equated to the people in the area (\$10,000 to \$15,000).

There are other real estate inspired income figures that are higher than these presented here. However, they are not substantiated by an accurate sampling technique. A figure accepted by the Littleton and Arapahoe County officials, but not substantiated, is \$13,500. This is considered an average figure for all families and is not tied to housing or occupation.

H. Frost, Jr.
H. Frost, Jr.
Assayer

UNITED STATES GOVERNMENT

Memorandum

Frank H. MacDonald, Acting Director of the Mint

TO : Attention Frank W. Rhea, Facilities Project Mgr. DATE: February 19, 1976

FROM : H. Frost, Jr., Assayer (Denver) 9487

SUBJECT: Schools

The most important school district nearest to and including the Gates Plant is Arapahoe School District No. 6. This district extends from Bellview to County Line Road north and south and from the Jefferson County Line to Holly Street east and west. It encompasses approximately 28 square miles. The cities of Littleton and Greenwood Village and large portions of unincorporated Arapahoe County are included. From the Gates site, the district extends about four miles to the north, and three and one-half miles to the east and to the west.

There are 15 elementary schools (kindergarten through 6th), four junior high schools (7th through 9th), and three high schools (10th through 12th). The schools are evenly spaced in the area.

In 1975-76 the district is handling 8,390 elementary students; 4,572 junior high students and 4,786 senior high students, which combined makes a total of 17,748 students. This total is down 269 students from a 1972-73 high of 18,017. Kindergarten enrollment is 1,000 and the high schools will have graduated 1,494 for the current year. This indicates a continuing drop. The enrollment drop is due to (a) maturing neighborhoods, and (b) the end of World War II and the Korean War baby boom. The district is not unhappy about the falling enrollment; it means (a) less pressure on crowded schools, (b) less district busing to fill small schools, (c) smaller classes for all of the teachers, and (d) the district feels that the falling numbers will allow for the inclusion of approximately 1,500 new students in the next five years if they are evenly spaced in the various grades. No new schools are being planned. The District No. 6 school is operated at a high level, comparable to the other school districts in the Denver metro area.

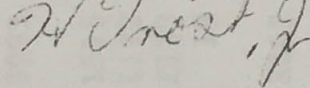
Directly north (north of Bellview to Yale Street) is the Engelwood School District; north of Yale is South Denver. These school districts are in the same position regarding capacity as the Arapahoe No. 6. They have ample space for the 1972-73 high and are experiencing falling enrollment.

To the northeast is the Cherry Creek District and to the northwest are the Jefferson County Schools; both are overcrowded. However, they are building rapidly.



In conclusion, it may be stated that Denver, and the areas to the south, have done an excellent job in providing schools for the present and in the future.

H. Frost, Jr.,



Attachment

Arapahoe Co. School Dist. 6

History of Pupil Enrollments

ARAPAHOE COUNTY SCHOOL DISTRICT NUMBER SIX
LITTLETON, COLORADO

HISTORY OF PUPIL ENROLLMENTS
FALL OF SCHOOL YEAR

GRADE	1960 1961	1961 1962	1962 1963	1963 1964	1964 1965	1965 1966	1966 1967	1967 1968	1968 1969	1969 1970	1970 1971	1971 1972	1972 1973
Kindergarten	966	1099	1221	1326	1142	1265	1234	1300	1236	1227	1163	1102	1134
1	807	1001	1089	1170	1208	1105	1195	1176	1240	1228	1197	1171	1140
2	760	894	1094	1179	1174	1235	1139	1262	1244	1286	1224	1275	1220
3	757	875	1024	1135	1159	1187	1264	1212	1314	1318	1327	1283	1352
4	725	868	984	1068	1117	1189	1216	1309	1228	1355	1326	1399	1346
5	599	847	973	1033	1095	1178	1187	1274	1333	1258	1396	1380	1438
6	613	687	943	1020	1035	1107	1173	1230	1315	1366	1304	1450	1437
Elem. Spec. Educ. Adjusted Growth			34	40	42	40	40	38	40	43	44	67	63
Total Elementary	5227	6271	7328	7931	7930	8306	8448	8794	8950	9081	8981	9127	9130
7	568	694	812	984	1037	1077	1138	1206	1272	1352	1373	1384	1506
8	595	658	776	831	978	1076	1079	1163	1260	1305	1386	1463	1461
9	508	683	757	863	870	1058	1133	1171	1249	1318	1374	1467	1563
Jr. High Spec. Ed. Adjusted Growth				15	30	27	21	13	16	18	18	18	18
Total Junior High	1671	2035	2345	2693	2915	3238	3371	3553	3797	3993	4151	4332	4548
10	444	565	758	779	910	930	1113	1194	1262	1318	1366	1442	1553
11	354	448	559	715	740	872	848	1065	1140	1192	1238	1339	1461
12	293	369	443	537	691	741	835	830	1044	1133	1167	1245	1306
Sr. High Spec. Ed. Adjusted Growth					6	15	20	22	21	19	15	15	19
Total High School	1091	1382	1760	2031	2347	2558	2816	3111	3467	3662	3786	4041	4339
GRAND TOTAL	7989	9688	11467	12695	13156	14102	14635	15458	16214	16736	16918	17500	18017
ANNUAL INCREASE	1699	1779	1228	539	946	533	823	756	522	182	582	517	6

DUNTY SCHOOL DISTRICT NUMBER SIX
LITTLETON, COLORADO

HISTORY OF PUPIL ENROLLMENTS
FALL OF SCHOOL YEAR

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
6	1300	1236	1227	1163	1102	1134	1092	1089	1000	
7	1176	1240	1228	1197	1171	1140	1175	1125	1132	
4	1262	1244	1286	1224	1275	1220	1151	1166	1113	
5	1212	1314	1318	1327	1283	1352	1248	1153	1186	
9	1309	1228	1355	1326	1399	1346	1366	1273	1168	
4	1274	1333	1258	1396	1380	1438	1344	1383	1289	
6	1230	1315	1366	1304	1450	1437	1479	1387	1449	
7	38	40	43	44	67	63	44	40	53	
3	8794	8950	9081	8981	9127	9130	8893	8616	8390	
0	1206	1272	1352	1373	1384	1506	1473	1481	1449	
8	1163	1260	1305	1386	1463	1461	1541	1524	1522	
9	1171	1249	1318	1374	1467	1563	1572	1624	1588	
3	13	16	18	18	18	18	27	25	13	
1	3553	3797	3993	4151	4332	4548	4613	4654	4572	
1	1194	1262	1318	1366	1442	1553	1639	1641	1702	
3	1065	1140	1192	1238	1339	1461	1500	1579	1570	
8	830	1044	1133	1167	1245	1306	1412	1436	1494	✓
5	22	21	19	15	15	19	15	13	20	
0	3111	3467	3662	3786	4041	4339	4563	4669	4786	
6	15458	16214	16736	16918	17500	18017	18078	17939	17748	
5	823	756	522	182	582	517	61	-139	-191	

UNITED STATES GOVERNMENT

Memorandum

Frank H. MacDonald, Acting Director of the Mint

TO : Attention Frank W. Rhea, Facilities Project Mgr. DATE: February 20, 1976

FROM : H. Frost, Jr., Assayer (Denver)

SUBJECT: Housing

Housing in the immediate area, that is, within an arbitrary six miles of the Gates Plant site, is in two categories. The first may be called old houses - built prior to 1960, and new houses - built since 1960.

The older houses are mostly located in the central older Littleton area, and in Englewood, to the north. Most of these older houses are in good condition and well located. They are in demand because of location and price, and the turnover is very slow. Present prices range from \$15,000 for two bedrooms up to \$35,000 for three and four bedrooms.

The newer housing, built since 1960, is located around the older sections, extending out into the county.

The building of single family dwellings was very rapid from 1960 to 1973. Since then, the construction has slowed almost to a standstill. A table of housing prices follows:

<u>Houses</u>	No. on Market 1973-1975 <u>Single Family</u>	Mean Market Price	Lowest Price	Highest Price
		\$	\$	\$
Littleton Proper	554	39,195	15,000	58,500
County	457	43,189	19,700	200,000 +

<u>Apartments</u>	Available 1973-1975	Buffet	<u>Monthly Rents</u>		
		\$	\$	\$	\$
Both Littleton & County	120	95-165	95-220	137-185	190-300

HUD projects the total area 1980 needs in the table shown on Page 2.



1980 Housing Needs

	<u>Total</u>	<u>Single Family</u>	<u>Multi- Family</u>	<u>Mobile Homes</u>
Population in D.U.	42,637			
Dwelling Units	13,282	7,836	4,782	664
Vacancies	534	235	286	13
1% Replacement of 7/31/73 Stock (Dilapidated Units)	106	62	38	6
Total Need	13,922	8,133	5,106	683
July 31, 1973 Habitable	<u>10,445</u>	<u>6,162</u>	<u>3,717</u>	<u>566</u>
New Need to 1980 ¹	3,477	1,971	1,389	117
1973 Deficit ²	<u>523</u>	<u>249</u>	<u>263</u>	<u>11</u>
Total New Need ²	4,000	2,220	1,652	128
Annual Requirements ³	571	317	236	18

¹ From Aug. 1, 1973 to Aug. 1, 1980

² Au. 1, 1980

³ From Aug. 1, 1973 to Aug. 1, 1980 (7 years)

From this table it can be seen that new development is needed. However, mitigating circumstance is that land with utilities and roadways is available in quantity and location.

The Denver Regional Council of Governments has established a plan, accepted by Littleton and Arapahoe Counties, for the establishment of low-income (\$0-4,000 per year) and moderate-income (\$4-9,000 per year) housing. The Arapahoe County allocation for 1972 to 1977+ is:

	<u>Total Dwelling Units</u>	<u>Low Income \$0 - 4,000</u>	<u>Moderate Income \$4 - 9,000</u>
Littleton	540	216	324
Arapahoe County	2,106	842	1,264

This is to be assisted or subsidized construction in connection with HUD. This is slow in starting but will be done. Some low-income and moderate-income housing is available now and would be available to Mint employees.

H. Frost, Jr.

H. Frost, Jr.
Assayer

UNITED STATES GOVERNMENT

Memorandum

Frank H. MacDonald, Acting Director of the Mint

TO : Attention Frank W. Rhea, Facilities Project Mgr. DATE: February 20, 1976

FROM : H. Frost, Jr., Assayer (Denver)

SUBJECT: Water and Sewage Systems

Water to the City of Littleton (proposed facility included) is supplied by the Denver Water Board under Total Service Contract Number 14. This contract is a nonending contract between the City of Littleton and the City and County of Denver.

Under a total service contract, water and services are supplied to the facility by the Denver Water Board. Water Board officials have indicated that the facility is served by two 12-inch water taps under this contract, and service could be curtailed on the following bases in times of water shortage, the first listed curtailment being adopted to meet the least serious situation, and the subsequent curtailment being adopted in addition to prior listed curtailments, the last to meet the gravest possible situations.

1. Restriction of uses which can be accomplished without serious injury to person or property, and prohibition of nonessential uses. (Inside and outside of the City and County of Denver.)
2. Prohibition of irrigation, except for commercial greenhouses. (Outside City and County of Denver.)
3. Prohibition of every use, except for domestic use and for essential commercial enterprises and industry. (Outside the City and County of Denver.)
4. Prohibition of all use outside the City and County of Denver, except for domestic uses.
5. Prohibition of all uses outside the City and County of Denver.

Water charges are based on metered delivery with a minimum charge determined by size of water tap and number of fire hydrants.

The sewer system consists of an 8-inch metered sewage discharge line that deposits waste into a line maintained by the City of Littleton. The waste is then treated at a treatment plant, jointly owned by the Cities of Littleton and Englewood. The amount of waste that is discharged into the system is limited only by the capacity of the 8-inch



line. Restriction on the system requires that the waste from the line be equivalent to domestic waste.

H. Frost, Jr.

H. Frost, Jr.
Assayer

Highway Traffic Counts and Capacities

Automobile and truck traffic problems at the Stryan Plant are mainly concerned with access to and from Denver and its suburbs to the north. The critical streets (roadways) are: North-South Parkway, Santa Fe Drive, University Boulevard and I-25; East-West County Line Road, Arapahoe Road, Ridge Road, Littleton Boulevard and possibly Sollyway.

These roadways have present traffic counts and capacities at critical points as follows (Figures are courtesy of Colorado Highway Dept., 1974-75):

Highway critical capacities - 22,000/24 hr. per 4-lane (intercepted)
by stop lights
5,000/24 hr. per 2-lane (intercepted)
by stop lights

North-South

University - 22,000/24 hr. per 4-lane capacity
@ Littleton Blvd. Inter. - 22,000/24 hr.
@ Arapahoe Rd. Inter. - 15,000/24 hr.
@ Coates (Mineral) Blvd. - 4,100/24 hr.

Santa Fe Drive (U.S. 66) - 22,000/24 hr. per 4-lane capacity
(It is in the process of being widened to 6 lanes with
capacity of 25,000 +)
@ Littleton Blvd. Inter. - 12,000/24 hr.
@ Ridge Rd. Inter. - 11,000/24 hr.
@ County Line Rd. Inter. - 1,500/24 hr.

University Boulevard - 22,000/24 hr. per 4-lane capacity
@ Arapahoe Blvd. Inter. - 11,000/24 hr.
@ County Line Rd. Inter. - 1,000/24 hr.

University I-25 - 22,000/24 hr. per 4-lane capacity
@ County Line Rd. Inter. - 1,000/24 hr.

UNITED STATES GOVERNMENT

Memorandum

Frank H. MacDonald, ACTing Director of the Mint

TO : Attention Frank W. Rhea, Facilities Project Mgr. DATE: February 19, 1976

FROM : H. Frost, Jr., Assayer (Denver)

SUBJECT: Highway Traffic Counts and Capacities

Automobile and truck traffic problems at the Gates Plant are mainly concerned with access to and from Denver and its suburbs to the north. The critical streets (roadways) are: North-South Broadway, Santa Fe Drive, University Boulevard and I-25; East-West County Line Road, Arapahoe Road, Ridge Road, Littleton Boulevard and possibly Bellview.

These roadways have present traffic counts and capacities at critical points as follows (Figures are courtesy of Colorado Highway Dept.. 1974-75):

Highway critical capacities - 25,000/24 hr. per 4-lane (interrupted
by stop lights
- 4,000/24 hr. per 2-lane (interrupted
by stop lights

North-South:

Broadway - 25,000/24 hr. per 4-lane capacity
@ Littleton Blvd.inter- 20,800/24 hr.
@ Arapahoe Rd. inter. - 18,900/24 hr.
@ Gates (Mineral Blvd) - 4,100/24 hr.

Santa Fe Drive (U.S.85) - 25,000/24 hr. per 4-lane capacity
(It is in the process of being widened to 6 lanes with
capacity of 35,000 +)
@ Littleton Blvd.inter - 19,700/24 hr.
@ Ridge Rd. inter. - 11,100/24 hr.
@ County Line Rd.inter - 7,500/24 hr.

University Boulevard - 25,000/24 hr. per 4-lane capacity
@ Arapahoe Blvd.inter. - 15,000/24 hr. +
@ County Line Rd.inter. - 5,000/24 hr.

Interstate I-25 - 50,000/24 hr. + per 6-lane capacity
@ County Line Rd.inter. - 35,000/24 hr. +

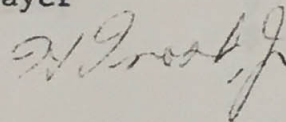


East-West:

<u>County Line Road</u>	- 4,000/24 hr. per 2-lane capacity
@ Gates Plant site	- 5,350/24 hr.
(Inasmuch as the traffic is in excess of 4,000, this road is in the planning stage for at least a four-lane road, possibly will be I-470.)	
<u>Arapahoe Road</u>	- 25,000/24 hr. per 4-lane capacity
@ Broadway intersection	- 15,000/24 hr.
<u>Ridge Road</u>	- 4,000/24 hr. per 2-lane capacity
@ Broadway intersection	- 6,150/24 hr.
@ Santa Fe Drive intersec.	- 4,350/24 hr.
(This road in planning stage for 4-lanes.)	
<u>Littleton Boulevard</u>	- 25,000/24 hr. per 4-lane capacity
@ Santa Fe Dr.intersection	- 5,800/24 hr.
@ Broadway intersection	- 19,600/24 hr.
<u>Bellview Avenue</u>	- 25,000/24 hr. per 4-lane capacity
@ Broadway intersection	- 20,700/24 hr.
@ Santa Fe Dr.intersection	- 24,800/24 hr.

The Mint force will generate 970 trips per day for Denver Mint employees. There will be possibly 250 trips for tourists daily. These trips (some 1,220) can be easily handled by the present access roads.

H. Frost, Jr.
Assayer



UNITED STATES MINT
DENVER, COLORADO

GENERAL SCHEDULE AND WAGE BOARD
Employees by Salary Categories
as of January 31, 1976

Salary	Range	No. of Employees (GS)	%	No. of Employees (WB)	%
\$ 7,000 - \$ 9,000		29	24%		
9,000 - 11,000		22	18%	23	7%
11,000 - 13,000		24	20%	58	16%
13,000 - 15,000		8	7%	201	56%
15,000 - 17,000		10	8%	48	13%
17,000 - 19,000		5	4%	22	6%
19,000 - 21,000		8	6%	8	2%
21,000 - 23,000		5	4%		
23,000 - 25,000		1	1%		
25,000 - 27,000		1	1%		
27,000 - 29,000		2	2%		
29,000 - 31,000		2	2%		
31,000 - 33,000		1	1%		
33,000 - 35,000		0			
35,000 - 37,000		1	1%		
37,000 - 39,000		1	1%		
Total		<u>120</u>	<u>100%</u>	<u>360</u>	<u>100%</u>

NOTE: An approximate 8 percent wage board increase is anticipated in March, 1976.

Average wage board annual salary	\$ 13,577.00
Average general schedule annual salary	\$ 13,814.00
Combined average annual salary	\$ 13,637.00

Estimated total payroll of Denver Mint employees for F.Y. 76:

Salaries	\$ 6,605,818.00
Benefits	658,844.00
Estimated Full Year Costs	\$ <u>7,264,662.00</u>

Ernest E. Jacobson, Jr.
Ernest E. Jacobson, Jr.
Acting Budget & Accounting Officer

UNITED STATES GOVERNMENT

Memorandum

Frank H. MacDonald, Acting Director of the Mint

TO : Attention Frank W. Rhea, Facilities Project Mgr. DATE: February 18, 1976

FROM : Eileen D. Grapin, Facilities Project Office (Denver)

SUBJECT: Denver Mint Employee Breakdown

The following is an ethnological breakdown of Denver Mint employees as of January 31, 1976:

White	-	282
Black	-	48
Spanish American	-	143
Oriental	-	6
Indian	-	1
Total No. of Employees		480



UNITED STATES GOVERNMENT

Memorandum

Frank H. MacDonald, Acting Director of the Mint

TO : Attention Frank W. Rhea, Facilities Project Mgr. DATE: February 20, 1976

FROM : H. Frost, Jr., Assayer (Denver)

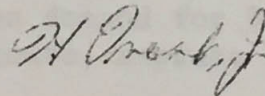
SUBJECT: Railroad Service

The Gates plant is served by a Santa Fe Railroad spur that services both the Gates plant and the proposed Santa Fe industrial park to the north.

Service will be on the usual demand basis. Switching will usually be done during the night or early morning.

The spur does not cross or interfere with any major streets or roads.

The spur is considered an easy one to service. Waiting for cars from Denver yards is sometimes a problem.



H. Frost, Jr.
Assayer



UNITED STATES GOVERNMENT

Memorandum

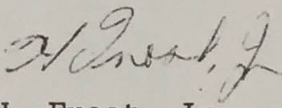
TO : Frank H. MacDonald, Acting Director of the Mint
Attention Frank W. Rhea, Facilities Project Mgr. DATE: February 20, 1976

FROM : H. Frost, Jr., Assayer (Denver)

SUBJECT: Public Transportation

Public transportation to the area of the proposed Littleton facility is provided by the Regional Transportation District (RTD). Present bus service runs north and south on Broadway from downtown Denver to a point .7 of a mile north and .3 of a mile east of the proposed facility. This line has numerous transfer points to other areas within the Denver metropolitan area. In addition to the north-south Broadway route, there is also a town shuttle bus that runs 1.7 miles north of the proposed facility that connects schools, shopping centers and other bus lines within Littleton and Arapahoe County. This shuttle service could be rerouted to include the proposed facility. RTD personnel have indicated that service directly to the facility would be initiated based on employee and/or visitor demand. Visitor and employee demand for bus service could result in additional buses to the present route, express buses and/or special tour buses from the downtown area.

Present plans call for a 23-mile, north-south Rapid Transit System to be completed between 1981 and 1985. This system will provide a high level of public transportation to the area of the facility from population centers, such as Northglenn, Thornton, Adams County, North Denver, Denver Central Business District, South Denver, and Englewood. The proposed site is 3.9 miles from the proposed Ridge Road station of the Rapid Transit System. Collection-distribution buses will provide transportation over the 3.9 miles from the proposed station to the present facility.


H. Frost, Jr.,
Assayer



UNITED STATES GOVERNMENT

Memorandum

TO : Frank H. MacDonald, Acting Director of the Mint
Attention Frank W. Rhea, Facilities Project Mgr. DATE: February 20, 1976

FROM : H. Frost, Jr., Assayer (Denver)

SUBJECT: Gas and Electric Service

Natural gas at the proposed Littleton facility is supplied by the Public Service Company of Colorado. The gas supplied to the facility was on an interruptible basis at the rate of 270 mcf/year. This gas is available to the facility if consumption is resumed by November 1976. However, if consumption is not resumed by November 1976, a new application will be required for gas allotment.

Natural gas at the Denver Mint is also supplied by Public Service Company of Colorado. The portion of gas used to heat the building is on an interruptible basis, and the portion of gas used in the manufacturing process is on a noninterruptible basis. The portion of gas used in the manufacturing process which has reached a maximum of 34.6 ccf/month is transferrable to the Littleton site on a noninterruptible basis.

Electric service to the proposed facility is also supplied by Public Service Company and is unlimited per Public Service officials.

H. Frost, Jr.

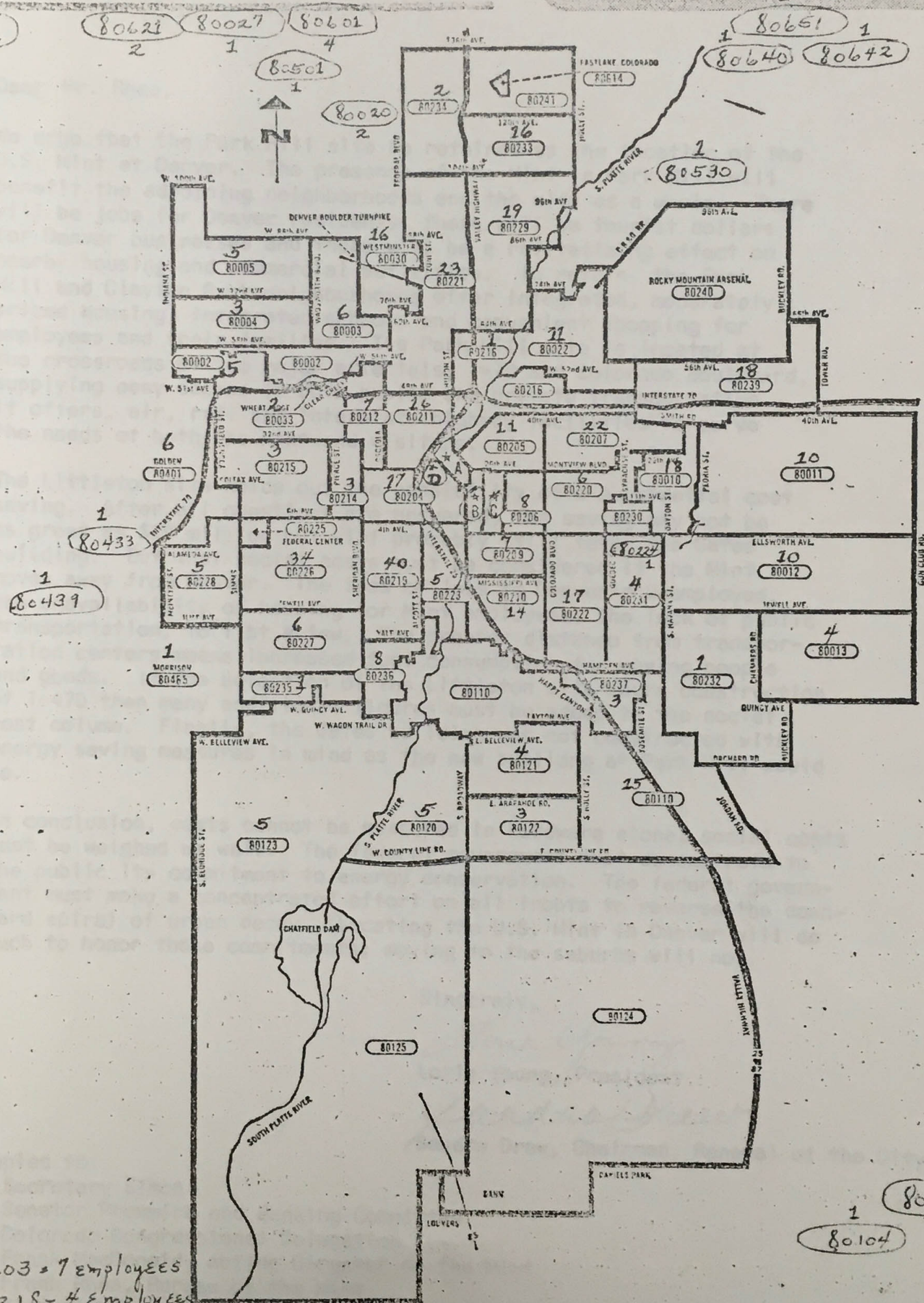
H. Frost, Jr.
Assayer



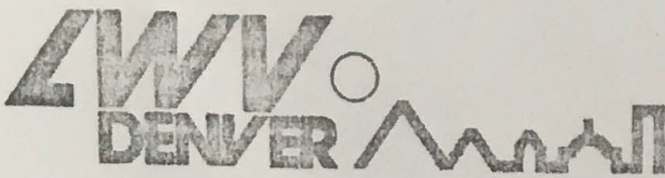
Present Location of Denver Mint
Employees' Residences by Zip Code
 (as of January 31, 1976)

<u>Zip Code</u>	<u>No. of Employees</u>	<u>Zip Code</u>	<u>No. of Employees</u>
80002	5	80216	1
80003	6	80218	4
80004	3	80219	40
80005	5	80220	6
80010	18	80221	23
80011	10	80222	17
80012	10	80223	5
80013	4	80224	1
80020	2	80226	34
80022	11	80227	6
80027	1	80228	5
80030	16	80229	19
80033	2	80231	4
80104	1	80232	1
80110	15	80233	16
80116	1	80234	2
80120	5	80235	1
80121	4	80236	8
80122	3	80237	3
80123	5	80239	18
80201	3	80302	1
80203	7	80401	6
80204	17	80433	1
80205	11	80439	1
80206	8	80465	1
80207	22	80501	1
80209	7	80530	1
80210	14	80601	4
80211	16	80621	2
80212	7	80640	1
80214	3	80642	1
80215	3	80651	1
	245		235
			245
TOTAL No. of Denver Mint Employees			480

For Additional
ZIP Code
Information See The
Yellow Pages For
Post Office Listed Under
Government Offices



* B = 80203 = 7 employees
* C = 80218 = 4 employees
* D = 80201 = 3 employees



LEAGUE of WOMEN VOTERS
of DENVER

February 19, 1976
1980 Dahlia Street
Denver Colorado 80220
303/321-7571

Dear Mr. Rhea,

We urge that the Park Hill site be retained as the location of the U.S. Mint at Denver. The presence of the Mint in Park Hill will benefit the adjoining neighborhoods and the city as a whole. There will be jobs for Denver residents, there will be tourist dollars for Denver businesses and there will be a revitalizing effect on nearby housing and commercial activities. In return, the Park Hill and Clayton Park neighborhoods offer integrated, moderately priced housing, integrated schools and convenient shopping for employees and their families. The Park Hill site is located at the crossroads of two major arterials, I-70 and Colorado Boulevard, supplying easy access to both public and private transportation. It offers, air, rail and interstate highway facilities to serve the needs of both the Mint and visitors.

The Littleton site holds out the possibility of a substantial cost saving. After all questions are answered, the saving may not be as great as \$29 million but will probably still favor the Gates building. But what social costs must be considered if the Mint moves away from Denver. The loss of jobs to Denver's unemployed, the unavailability of housing for Mint employees, the lack of public transportation, to list a few. The greater distance from transportation centers means increased fuel consumption for moving people and goods. If the selection of the Littleton site spurs construction of I-470 then many additional figures must be added to the social cost column. Finally, the Gates building was not constructed with energy saving measures in mind as the new building at Park Hill would be.

In conclusion, costs cannot be measured in hardware alone; social costs must be weighed as well. The federal government must demonstrate to the public its commitment to energy conservation. The federal government must make a concentrated effort on all fronts to reverse the downward spiral of urban decay. Locating the U.S. Mint in Denver will do much to honor these commitments; moving to the suburbs will not.

Sincerely,

Lorie Young
Lorie Young, President

Sandra Drew
Sandra Drew, Chairman, Renewal of the City

copies to:

Secretary Simon
Senator Proxmire and Banking Committee
Colorado Congressional Delegation
Frank MacDonald, acting Director of the Mint
Frank Rhea, Bureau of the Mint
Michael Norton, G.S.A.
Mayor of Denver
Denver City Council

Denver, Colorado 80219
Westwood PO Box No.19285
13 February 1976

Mr. Frank W. Rhea, Facilities Project Manager
Bureau of the Mint
320 West Colfax Avenue
Denver, Colorado

Dear Mr. Rhea:

SELECTION OF SITE FOR U.S. MINT

Where should it be located?

Politics should have nothing to do with the selection of the site. This is a matter which affects the good of all of us--the pocketbooks of the taxpayers. The parties should forget their political boundaries and concentrate on:

1. The cost of the land;
2. Cost of building materials;
3. Suitability of the structure for its purpose--especially the strength of construction for heavy manufacturing equipment;
4. Economy of operation and maintenance;
5. Safety against sabotage;
6. Relationship to other Government buildings.

It is not logical that our Federal buildings should be scattered all over the region. The Denver Federal Center was purchased for the purpose of gathering them in one location for convenience of administration. Let us use the land which is already paid for and fills all the requirements for the new mint. The advocates of other sites are forgetting many points.

Enclosed is a partial list of items included in the selection of the site, all of which should be considered by the panel which will make the final decision. Apparently there are individuals and/or factions which have succeeded in removing the Denver Federal Center from the list of possibilities. I wish to bring it back into serious consideration.

What has stirred me up? The fact that I have run into arguments which are not based on fact but are purely biased opinions, which has generated the suspicion that there is too much self-interest involved and caused me to launch this campaign. I am doing this without a single axe to grind, either politically or financially. As a Senior Taxpayer who can prove an ancestry in this country since 1771, I hold a status which qualifies me to represent the other taxpayers and U.S. citizens.

A decision favoring the Denver Federal Center would end the political squabbles and start the construction of a beautiful new building we would all be proud of. Is this wishful thinking?

Respectfully submitted,

M. E. Wilklow

ANALYSIS OF DENVER FEDERAL CENTER AS SITE FOR NEW UNITED STATES MINT
TO BE CONSIDERED BY U.S. SENATE BANKING COMMITTEE.

SEVERAL SITES HAVE BEEN SUGGESTED AND THEIR ADVANTAGES URGED BY INTERESTED PARTIES. A COMPARISON WITH THE DENVER FEDERAL CENTER IS CAREFULLY ANALYZED IN DEPTH, AS FOLLOWS:

1. The land at the Center is already owned by the Government, and therefore the chance of private or public involvement in its purchase is not possible. Millions of dollars in purchase price would be saved.

The Park Hill Golf Course could be sold back to its previous owners or held for investment.
2. A remodeled building can never be anything but a makeshift. We should settle for nothing less than a good, tough, bomb-resistant structure that will last for many generations.
3. The Denver Federal Center is closer than any other suggested site to the red sandstone quarries at Lyons and the clay deposits near Golden which make excellent fire brick and building material.
4. The statement that there is no room left at the Federal Center is not true or based on fact at the present time. There is plenty of room which is not earmarked for any other activity.
5. The beautiful, level site on the southeast corner of the Center would be ideal and an asset to the surrounding neighborhood. There are other fine locations on Sixth Avenue and Alameda Avenue which have everything to be desired. A handsome, red sandstone structure, set within a stone wall and well landscaped, would be an imposing addition to the area.
6. The heating and power systems could be tied into the present central heating system in use by the other buildings at the Center. This would eliminate the need for auxiliary and storage buildings.
7. It would be necessary to enlarge the central plant, but would not cost as much as necessary at other sites.
8. Air pollution would be carried away by the natural north-south winds along the foothills.
9. Railroad tracks are already in place. Public transportation has already been established. City buses run along Sixth Avenue and Alameda. Parking is not a problem. *
10. The proximity of the GSA buildings to service the facility is an asset. The Health Unit, restaurants, and other activities for the convenience of the Federal employees would be available to all.
11. The name "Denver" could be retained, since it is used for the Center. Therefore, all the dies and equipment bearing the name would be saved.

Respectfully submitted,

McLellan
Senior Taxpayer

*Of prime importance is the existing security and guard system which can be shared.

February 10, 1976

Channel 7 - 5:00 p.m. News Report

There was a tour today of the Gates Plant at South Littleton to see whether it could be used by the Denver Mint. An initial look indicated the facility might be converted for \$29 million less than a new Mint would cost.

Jim Redman:

"The Gates Rubber Company only operated this plant for about seven months after it was completed in 1971. The 58-acre site on the southern end of the Denver metropolitan area includes the 425,000 square foot building with its base walls nine inches thick. Gates is asking \$8.5 million, an admitted low price. A 15 - 20 man team from the General Services Administration will take about a week to complete the engineering feasibility study. Regional Director of the GSA, Mike Norton, told the news conference what the team will be looking for:

"The first prerequisite is a sufficient amount of land to be able to accommodate the processes of the Mint. There are in two packages some 58 acres on this parcel here that would be available. The second criteria is a manufacturing type facility of adequate size, adequate structure, adequate floor load strength, adequate ceiling height, adequate wall size and grade to be able to accommodate the manufacturing type processes. That will be the subject of the engineering survey."

That question is whether the estimated \$29 million savings by using the abandoned Gates Plant instead of building a new Mint in Park Hill is an accurate figure. It will cost about \$10,000 to complete this study. And when its finished the controversy still won't be over regardless of the outcome. For this is an election year, and the choice between using this plant or building on the site in Park Hill is a choice between two Congressional districts. It seems rather doubtful that if both sites were in the same representative's territory there would be a great public controversy."

Whether the Mint is located in Denver or Littleton, local Governments are going to realize no property tax advantage because Federal installations are exempt from local taxation. However, a bill that is being debated in Congress would change that system and would provide a bonanza to Denver, which has more Federal installations than nearly any other city in the country outside the capitol.

From the Washington Correspondent:

"Nearly 24 million acres of Colorado or 36% of the State is Federally owned land. Legislation called "Payment in lieu of tax bill" has been introduced by Colorado Congressman Frank Evans. It was a part of the Federal Government to pay counties 75¢ an acre deducting any current revenue sharing funds to 10¢ an acre whichever is greater on lands owned by the National Park Service, Bureau of Land Management, National Forest Service and all wilderness areas. This could mean as much as \$16 million to Colorado. Nearly half the public land in Colorado is in Congressman Evan's district. How will the "in lieu of tax bill" help Colorado?"

"It will help Colorado by about over five times the income that comes to Colorado now under existing law. It brings revenue to the State from Forest Service and BLM lands, arising out of grazing, mining, timbering. So the economic impact generally throughout the State would be great."

"How come it has taken Congress so long to come up with a bill that would cause the Federal Government to pay taxes to the State?"

"I think it took this long because there wasn't enough awareness of the impact of Federal activities on Federal lands in States and counties throughout the United States. But with a great development of new sources of energy, it suddenly has come to the attention of many areas that this sudden development doesn't produce enough revenues for the States and local jurisdictions to be able to take care of the impact arising out of crash energy production."

"The land tax bill is still being considered by the House Interior committee. But Congressman Evans says it could face strong opposition from States that have little Federal land. Also the President has indicated that he would not sign legislation compelling the Federal Government to pay nearly one half billion dollars in land taxes. So without strong support neither Congress or the administration, Frank Evans' bill may not have much of a future."

Februaury 10, 1976

Channel 4 - 5:30 p.m. New Cast

The Gates Plant in South Littleton which has been suggested as a possible site for the new Mint. Gates finished the plant in 1971 and tires were manufactured in it until 1973, to which time Gates got out of the tiring manufacturing business. Now Gates is trying to sell that plant for \$8.5 million and it has been suggested that the Government could save \$29 million by locating the new Mint there instead of at a site on the Park Hill Golf Course inside the Denver City limit. That suggestion has evoked charges of playing politics. Congressman William Armstrong whose districts the Littleton Plant lies and Denver Congresswoman Pat Schroeder are of course each interested in where the Mint does end up. Mike Norton the Regional Administrator for the GSA discussed again some of the criteria by which the GSA and the Mint are judging the two perspective factory sites:

"The first prerequisite is a sufficient amount of land to be able to accommodate the processes of the Mint. There are in two packages some 58 acres on this parcel here that would be available. The second criteria is a manufacturing type facility of adequate size, adequate structure, adequate floor load strength, adequate ceiling height, adequate wall size and grade to be able to accommodate the manufacturing type processes. That will be the subject of the engineering survey. A \$29 million savings is of the outset a construction budget cut based upon known and estimated construction costs. You know that average construction costs on a per square foot basis are at a certain level. Extrapolation for an industrial type plant of approximately \$60 per square foot is a very simple technique in terms of budgeting for construction projects. That is just extrapolating the costs per square foot for similiar types of facilities to the total square footage desired. The \$60 per square foot is based on known construction costs in the construction industry."

The following comments are by State Senator Regis Groff:

"There is no question that the City of Denver has to have a resource base for revenue and I can't image a situation where we would take money out of the City such as the Mint and remove it to Arapahoe County when the City of Denver has come before the legislation and made appeal for money this year. There is no question that the money that the Mint brings in terms of tourist dollars has to remain here. So I am introducing that resolution hoping that the State legislature will go on record in the State representative's office to give the kind of support needed to keep the Mint where it belongs. The money has been spent already, they have already begun to move the ground around the Park Hill Golf Course site and to take it from that site and look at another site is being irresponsible. I think that Congressman Armstrong is simply blowing political smoke."

State Senator Regis Groff

February 10, 1976

Channel 9 - 10:00 p.m. News Cast

"Government officials were ...

"..... in Littleton today trying to visualize it as a location for the Mint. The plant has been vacant for a couple of years since Gates decided to get out of the tire business. One of the questions to be answered is would it be cheaper to locate the Mint here or to build a new one on part of the Park Hill Golf Course in Denver as has been proposed. Gates wants \$8.5 million for the building and the improvements would come to about \$17 million more. But if those figures are right then it is believed the cost would still be about \$30 million cheaper than starting from scratch in Denver. Then there is the question of accessibility, for employees as well as tourists. Not to mention the political battle that many feel could be the deciding factor. The Mint people at this point are not about to take sides.

Frank Rhea

February 10, 1976

Channel 4 - 5:30 p.m. NEWS CAST

"you're acting like you don't believe me at all but this is a figure that came from General Services Administration and Washington based on their knowledge of all the construction that they handle. This has gone on over a long period of time and today's costs. If I am going to build a house today and I say I want 3,000 square feet, I can do an estimate of what that house will cost. If I put in a lot of fancy chandeliers and all kinds of gadgets in it then I might up the cost. On the other hand if I make it where I can change a little bit but budgeting purposes, if I want a \$3,000 house, A Wood Brothers type house, I can come up with a reasonable figure of what it costs.

UNITED STATES GOVERNMENT

Memorandum

TO : Frank H. MacDonald
Acting Director of the Mint

DATE: February 14, 1976

FROM : Frank W. Rhea *Frank W. Rhea*
Facilities Project Manager

SUBJECT: Technical Evaluation of the Gates Rubber Company Facility in Littleton, Colorado, for Possible Use as a New Denver Mint

1. Nature and Purpose of Evaluation

During the period February 9 to 14, 1976, a task force of engineers, architects and operating officials from the Bureau of the Mint and the Denver Region of the General Services Administration studied and evaluated the Gates Rubber Company facility in Littleton, Colorado to determine the feasibility of using this plant as the new Denver Mint. This evaluation was based on the design criteria for the new Denver Mint and other pertinent planning data that have been accumulated for the new Denver Mint project over the past four years. The evaluation was conducted in two parts as follows.

a. Bureau of the Mint personnel evaluated the building in detail to determine its overall suitability to meet the criteria of the proposed new mint. This evaluation included making block-type layouts of all production equipment areas and mint special features to fulfill the production parameters and other criteria previously established for the new mint. These layouts and examinations by the Mint team were used to define additions and improvements required to make the Gates facility comparable to the planned mint at Park Hill.

b. The General Services Administration team evaluated the grounds, the building and the building systems with reference to the quality of these features, to determine the extent and cost of modifications that would be required to accommodate all mint production equipment and special requirements, and to define any necessary repairs or improvements to bring the facility into like-new condition. Reports from the various elements of the Bureau of the Mint team making the evaluation are attached. The extensive General Services Administration report of its evaluation is at Tab A.

2. Summary of Findings

a. Bureau of the Mint

After thorough examination of all aspects of the Littleton facility, the Bureau of the Mint has determined that the subject facility, with



modifications and additions, would be ideal for use as the new Denver Mint. Production equipment layouts have been completed by different elements of the Denver Mint staff, all of which show that this facility would accommodate our production equipment and special requirements in an excellent manner. It is almost as if this facility had been designed as a mint. Admittedly, some modifications and alterations to the facility would be required to accommodate mint special criteria such as coin storage, public visitors, additional security, additional interior utilities and noise control. All of these items have been identified and reported to the General Services Administration, and GSA has included costs for the necessary modifications and additions in their cost estimates.

b. General Services Administration

The General Services Administration team has examined the structure in detail in comparison with the new mint design criteria and all applicable Federal specifications, codes and requirements. GSA has determined that, in general, the Littleton plant is an excellently designed and constructed modern industrial facility situated in an appropriate aesthetic setting. The General Services Administration has identified some repairs and improvements to the building and grounds that would be required to place the facility in a like-new condition. These are items such as roof repairs in about five years, provision of positive drainage away from the building, minor repairs to floors, and cleaning and repainting of portions of the interior. All of these items have been included in the General Services Administration cost estimates. In addition, as stated previously, GSA has estimated costs for utilities expansions, additional interior office space and shops, partitioning, coin storage vaults, public visitors accommodation, acoustical treatment and other items to meet all requirements for the planned new Denver Mint. GSA has concluded that this structure with these modifications and improvements would be ideal as a new mint.

3. Cost Comparision

The General Services Administration has reviewed their estimate for construction of the mint at the Park Hill site, which includes costs of the land, the buildings and site development. This estimate, which was prepared as of January 1, 1975, has been revalidated in the amount of \$46.5 million. Similarly, GSA has prepared estimates for all of the modifications, additions and improvements which would be required to complete the Gates facility as a mint in a like-new condition. This cost estimate, including an allowance for contingencies and a cost escalation factor to the midpoint of the construction period, is \$12.7 million. Adding this to the aquisiton price of \$8.5 million produces a total estimated cost for a new mint in the Gates facility of \$21.2 million. Thus, the estimated savings in using the Gates facility versus constructing a new mint at Park Hill is \$25.3 million.

The above cost comparisons do not include the costs of procuring, relocating, and installing production equipment and materials handling systems, as these costs would be the same for the new mint at either location. These production systems costs are estimated at \$18 million, which added to the \$47 million buildings and grounds costs, results in the estimated cost of \$65 million for the new mint at Park Hill. This estimated cost of \$65 million is the basis of the increased authorization request contained in H.R. 5620.

4. Conclusions

After completion of detailed analyses of the Gates plant by a team of some 17 professionals from the Bureau of the Mint and the General Services Administration, it is concluded that this plant is very similar to the planned new construction at Park Hill and that with the discussed modifications, additions and improvements, the facility would make an excellent new Denver Mint. In addition, by acquiring this facility expeditiously and accomplishing the necessary modifications and improvements, it appears that the Bureau of the Mint could save approximately two years' time in completing the new Denver Mint ready for coinage production.

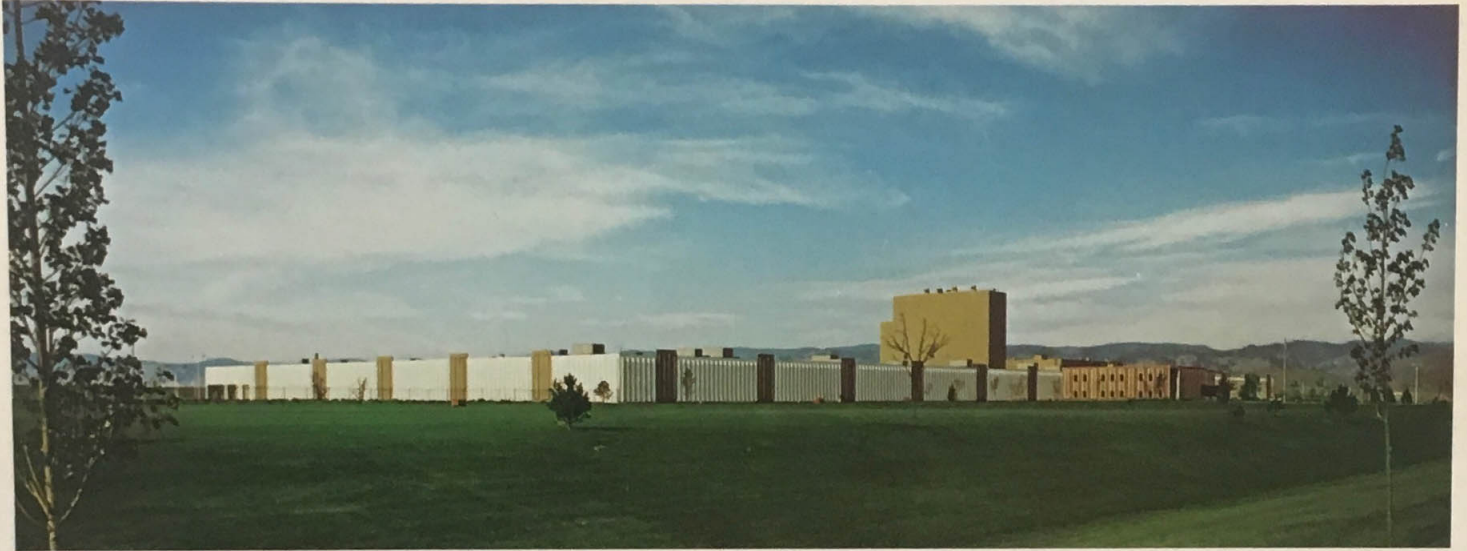
Attachments

Reports from Denver Mint:

- Assayer/ Quality Control Office
- Building & Mechanical Division
- Coining Division
- Safety Office
- Security Office

GSA Report (Tab A)

COLORFUL COLORADO



NEW MANUFACTURING FACILITY

425,000 SQUARE FEET

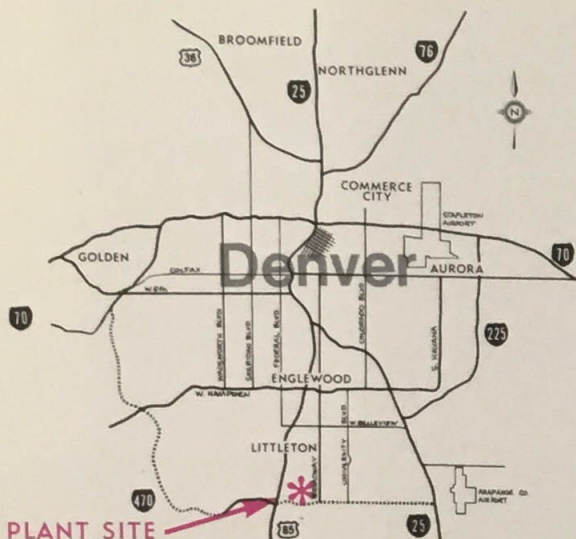
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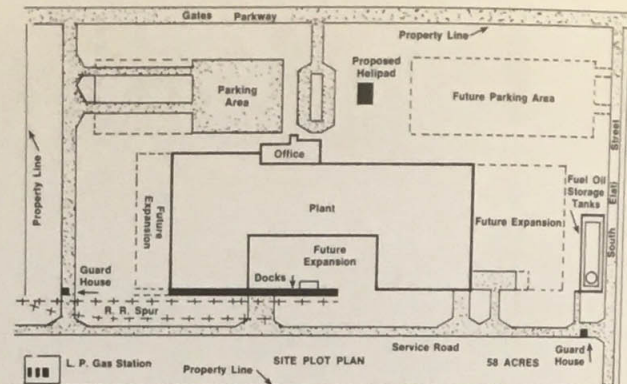
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SITE FACTS

SITE SIZE: 58 acres, rectangular.

TOPOGRAPHY: Level, finish grade gently rolling.

ZONING: Planned Industrial Park -- Manufacturing.

UTILITIES: All underground.

PARKING: Lighted 250-car paved parking area covering 74,000 square feet, room for expansion.

LANDSCAPING: Site well landscaped, and has automatic sprinkler system.

RAIL: Served by Santa Fe Railroad, spur directly to plant, with siding.

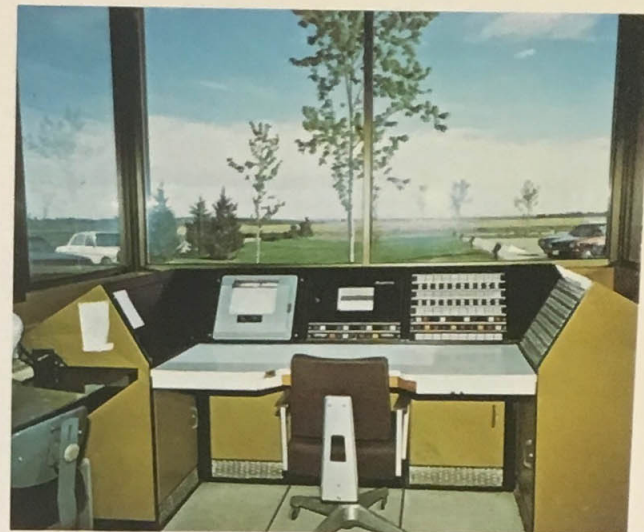




Section of the boiler and compressor room, with panels for automatic control.



Interior of warehouse



Control Panels for Electronic Security System: Monitors all external openings, all fire signals, and guard clocking stations, from a single location, with automatic printed record of all signals.

SERVICES

1. Utilities:
 - a) Water: 12" Line (City of Littleton) to Bldg. with 6" Bldg. feed with 300,000 Gallon Fire Protection Storage Capacity.
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2. Fire and police protection provided by City of Littleton.
3. Telephone: 900 pair cable with 200 service outlets in place.
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 - b) Candlepower: Manufacturing: 50-80 Storage: 15
5. Heating: Perimeter steam, gas-fired makeup air units.
6. Steam: 60,000 lbs/hr at 350 PSIG saturated.
 - a) Power Plant is equipped with complete water treatment facilities.
 - b) Three Cooling Towers: 5000 GPM, 850 GPM, 500 GPM.
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BUILDING DESCRIPTION

1. One Building, Two Fire Walls.
2. Floor Space — Finished: 424,649 sq. ft.
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 - Manufacturing: 390,860 sq. ft.
 - Miscellaneous: 10,994 sq. ft.
 - Unfinished: 47,367 sq. ft.
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 - b) Width: 423'
 - c) Height:
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 - 2) Clear Ceiling Height in 80% of Area — 22'
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Downtown Denver in background

This beautifully maintained facility was built by Gates Rubber Co. and finished in 1971. Tires were manufactured in it until late in 1973, at which time Gates decided to discontinue the manufacture of tires. As a result the property is offered at a tremendous saving to a user.

Price \$8,500,000

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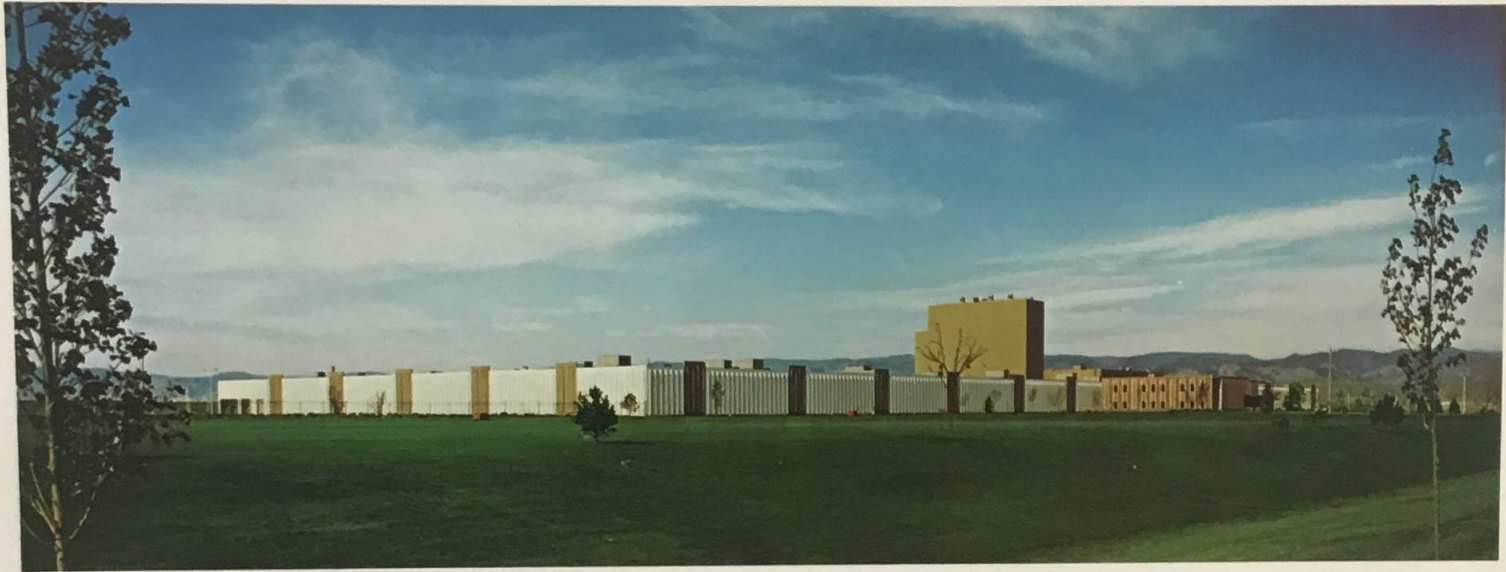
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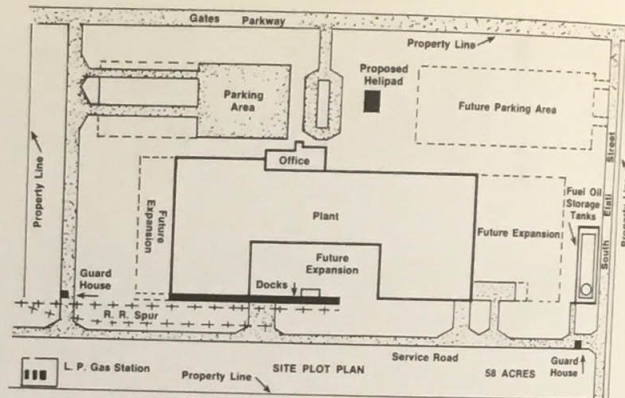
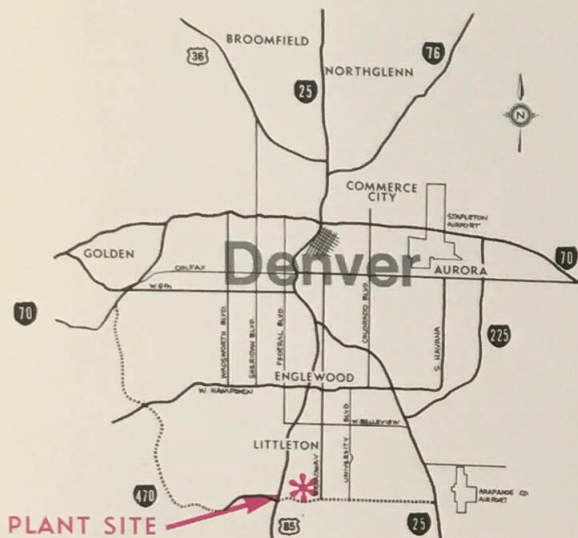
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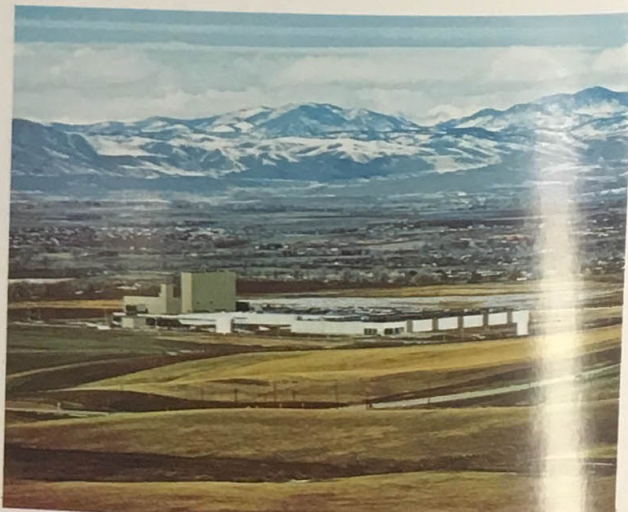
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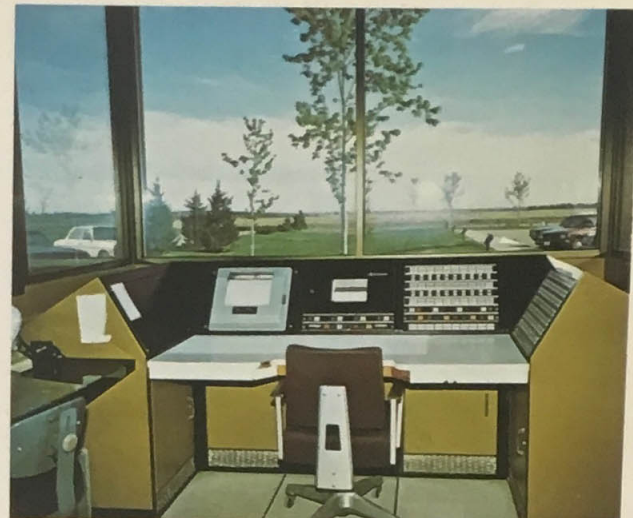




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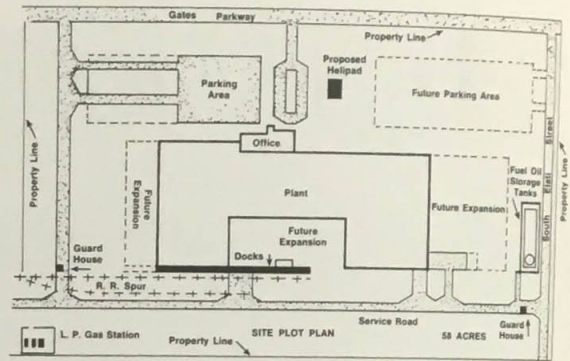
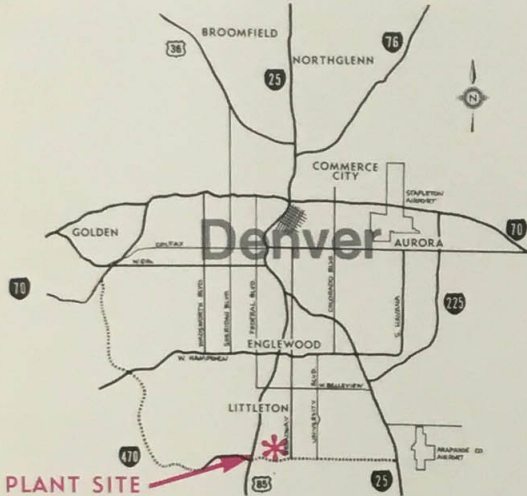
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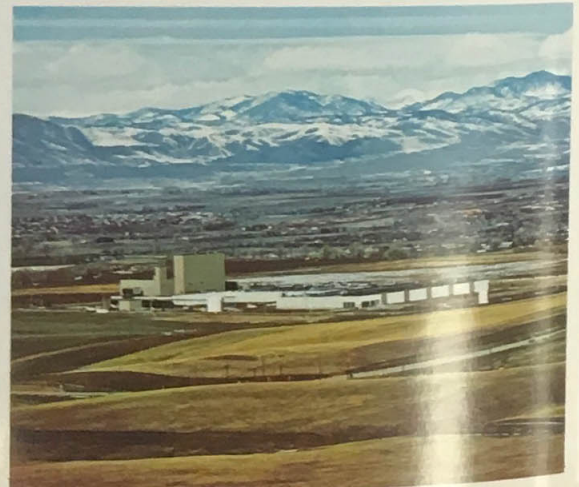
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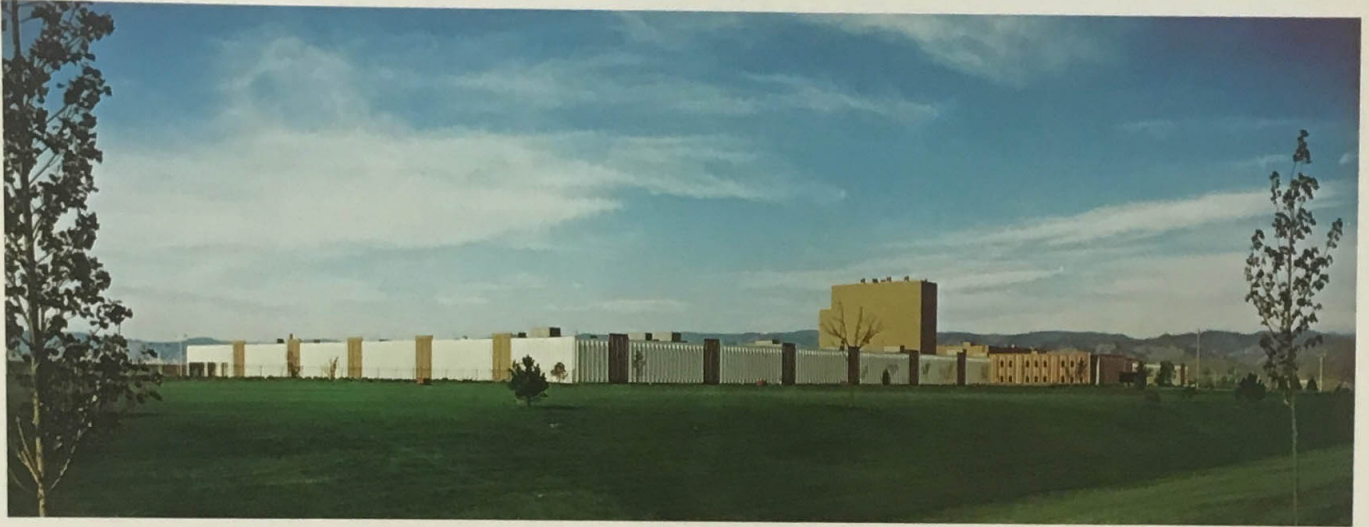
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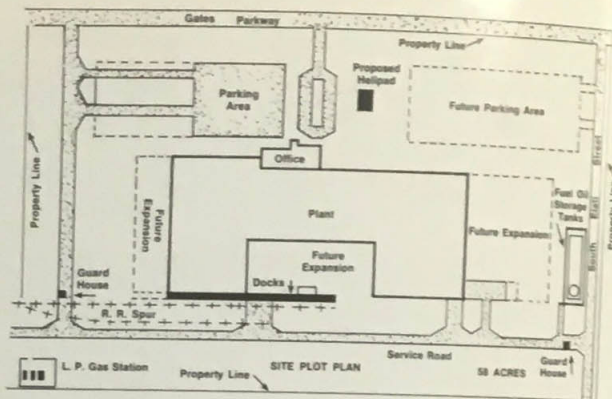
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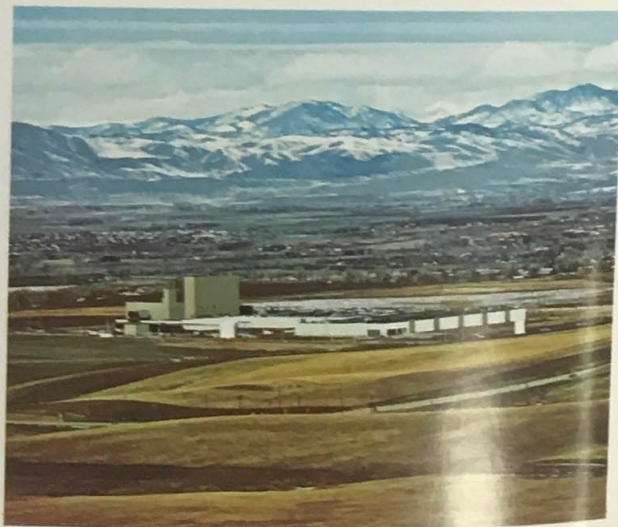
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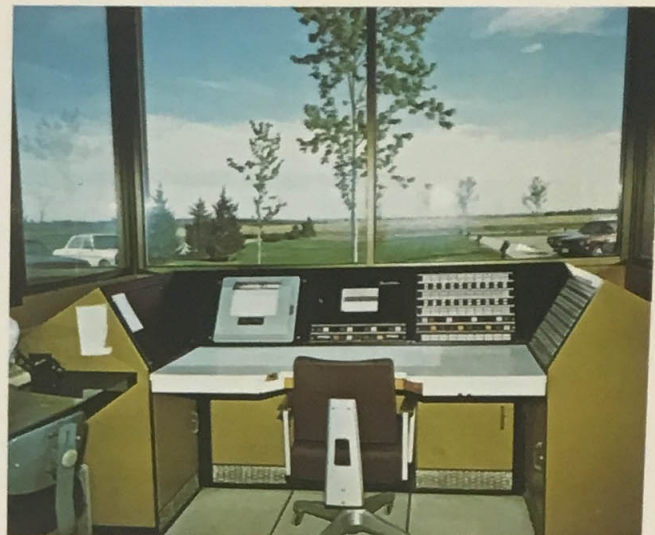




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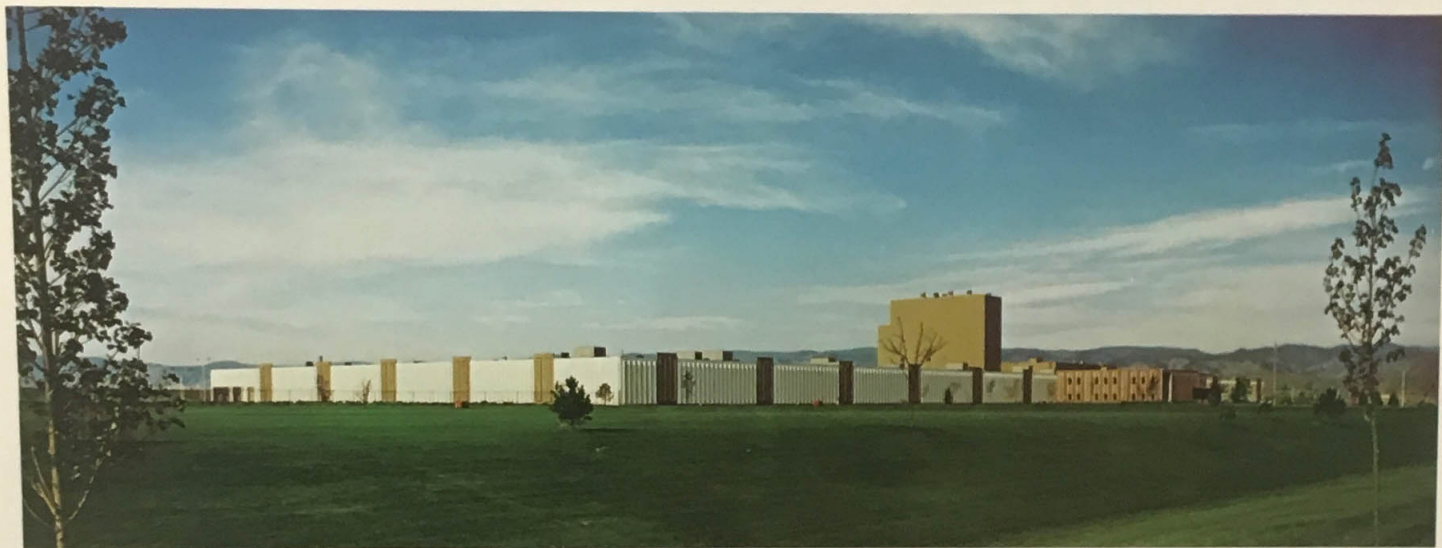
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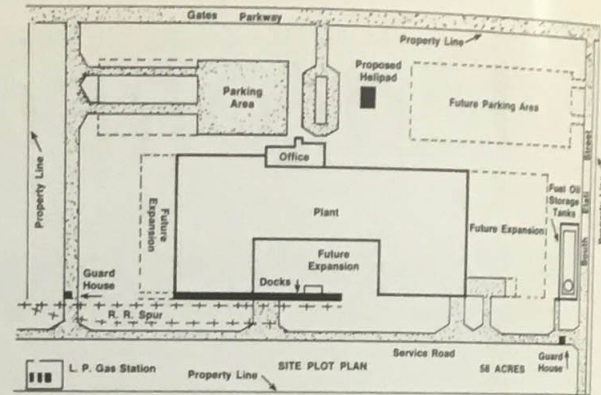
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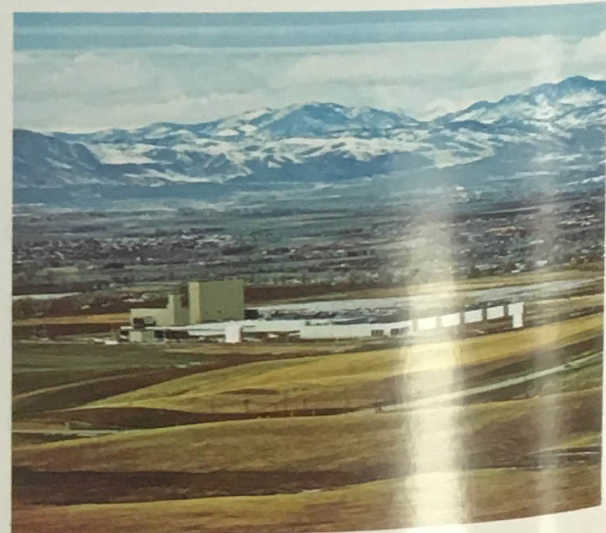
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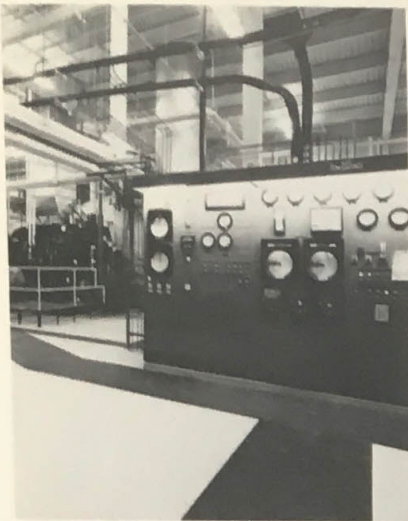
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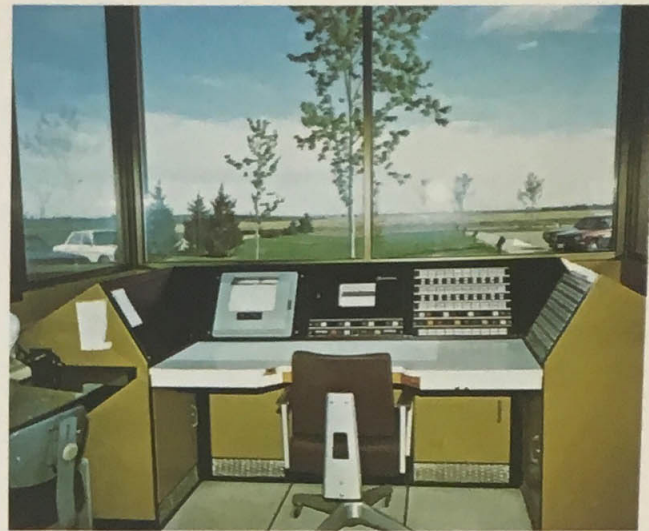




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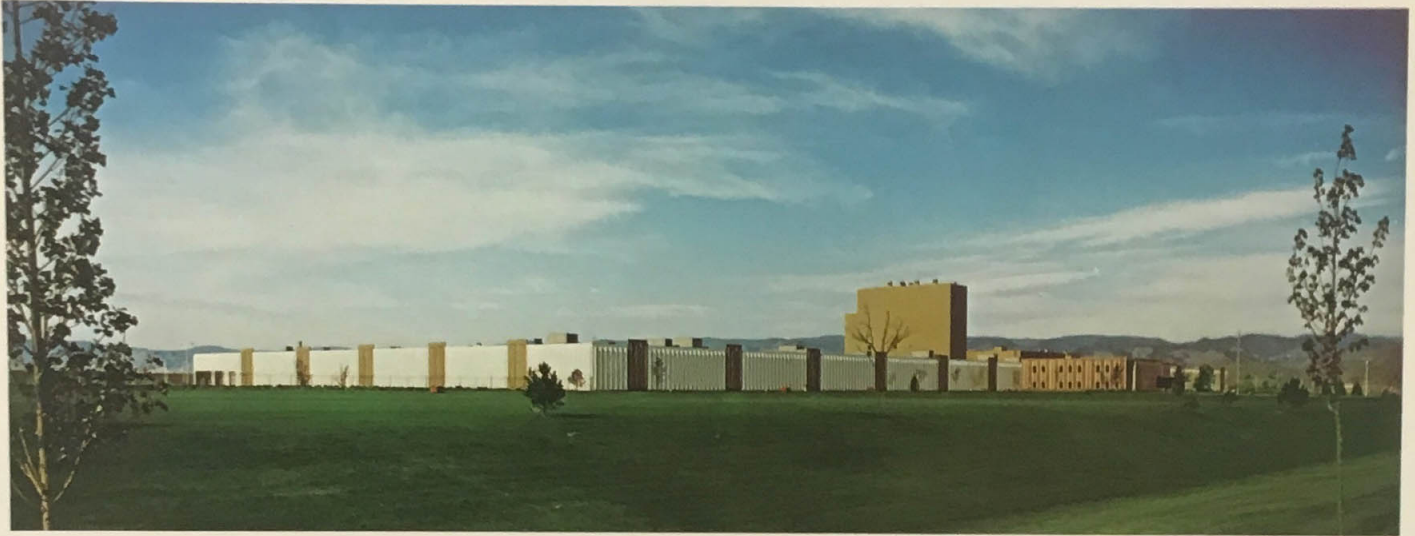
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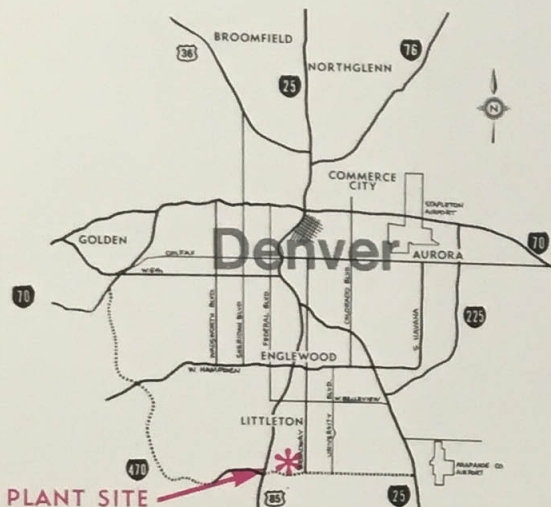
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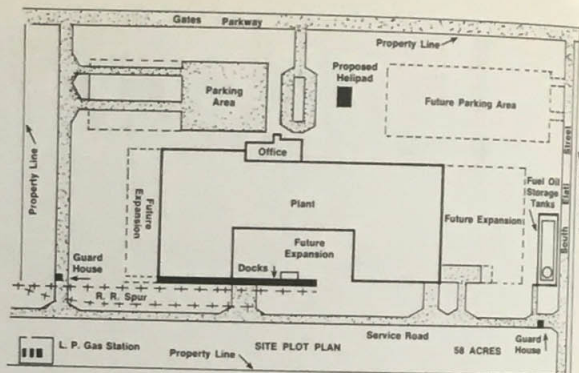
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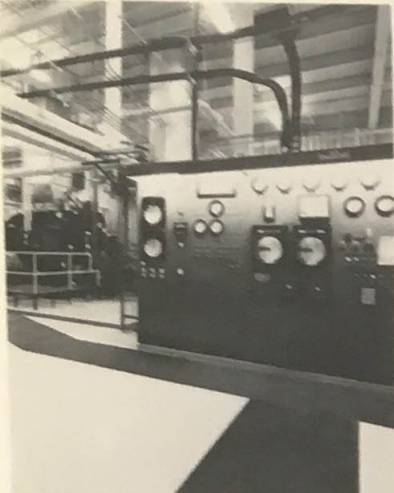
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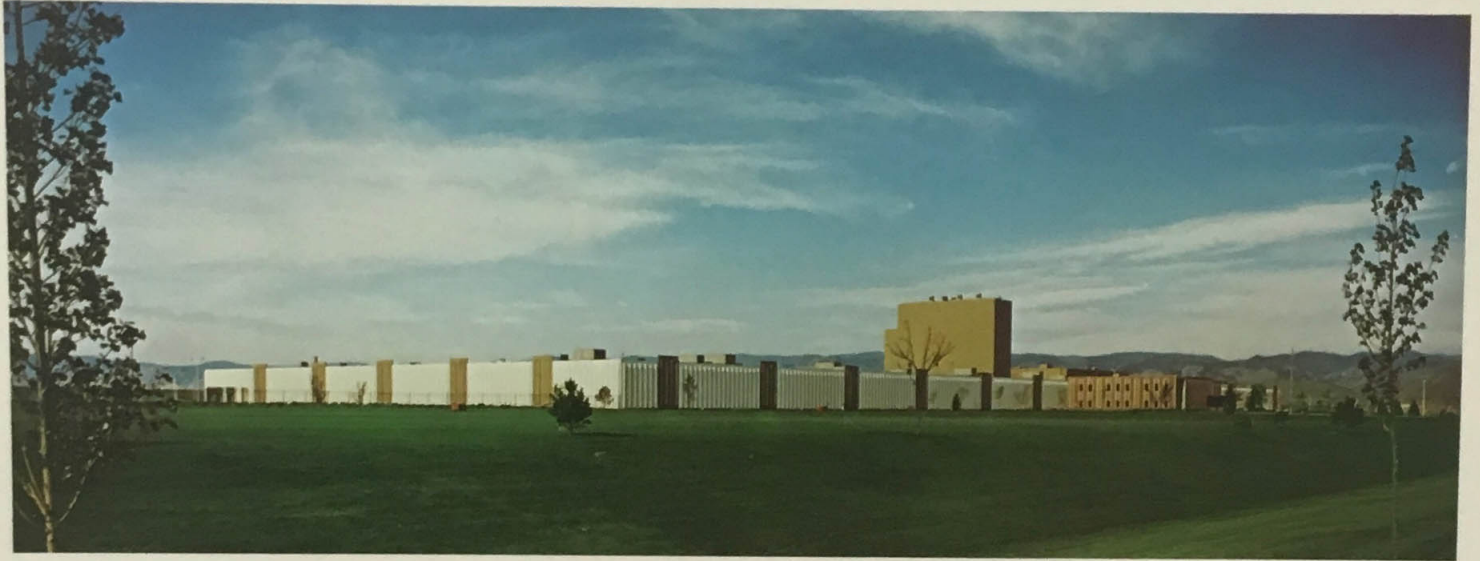
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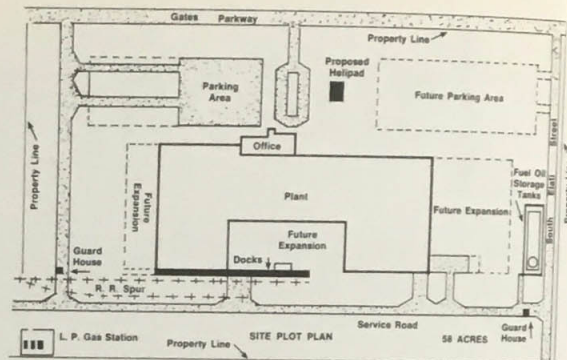
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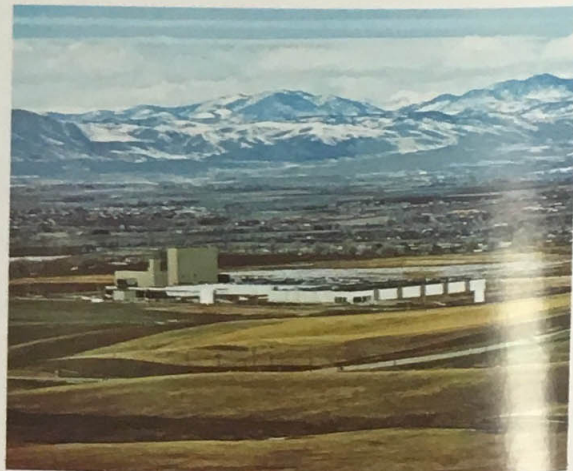
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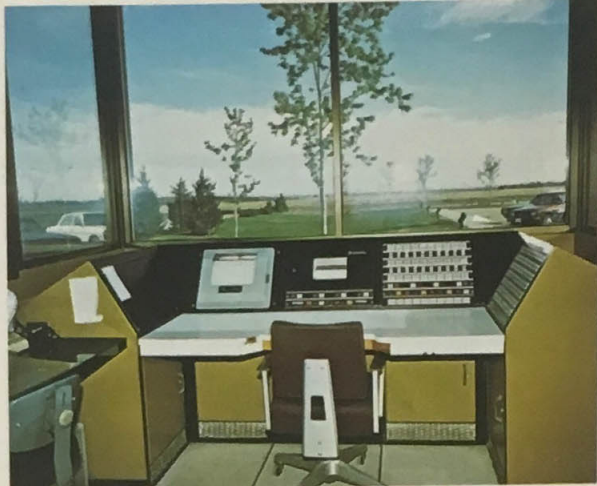




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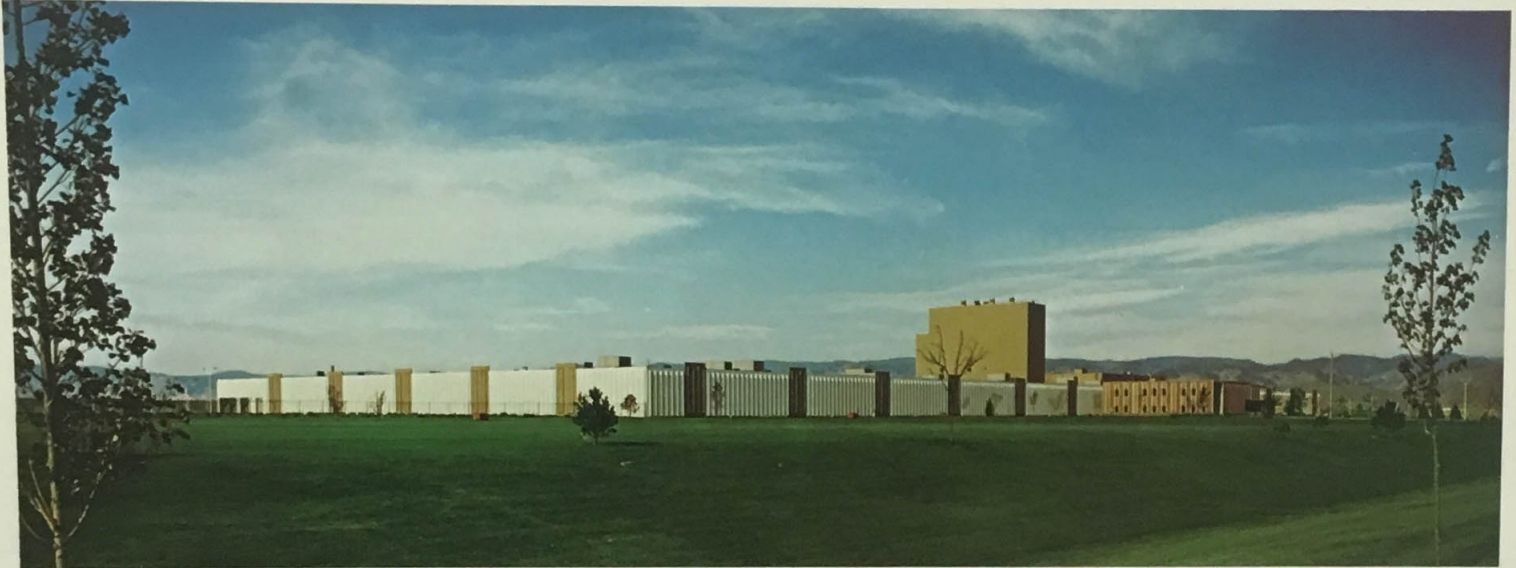
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NEW MANUFACTURING FACILITY

425,000 SQUARE FEET

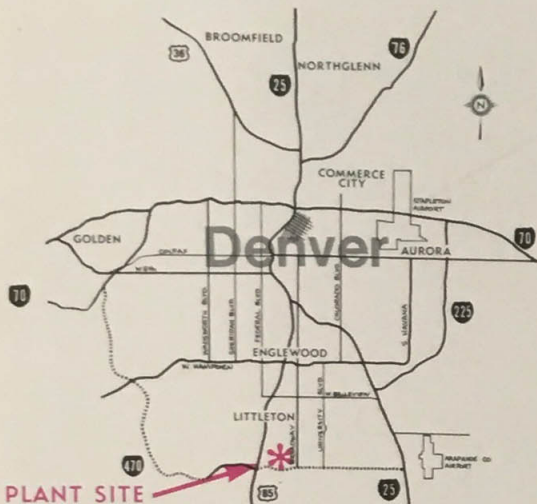
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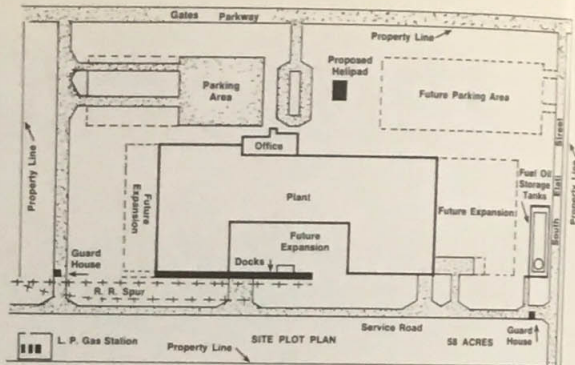
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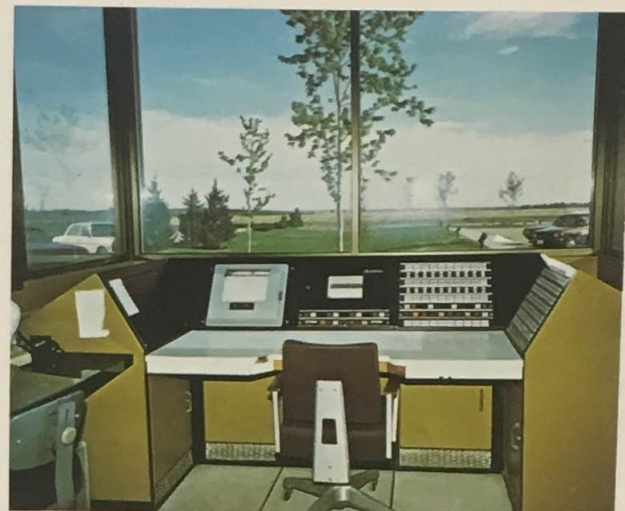




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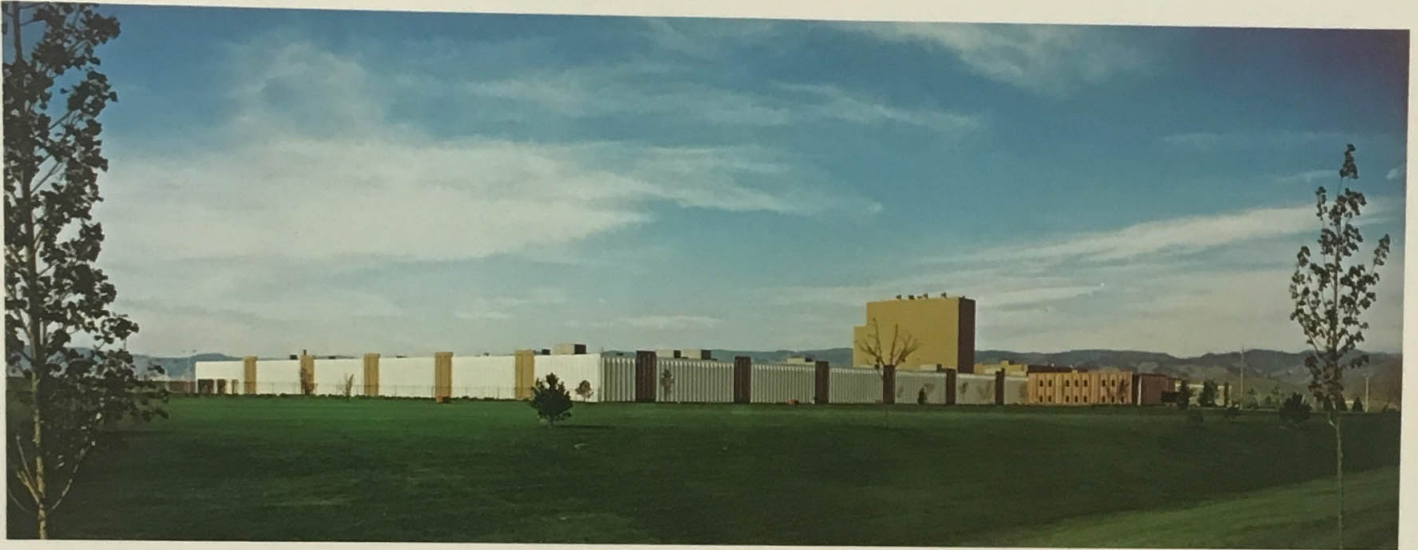
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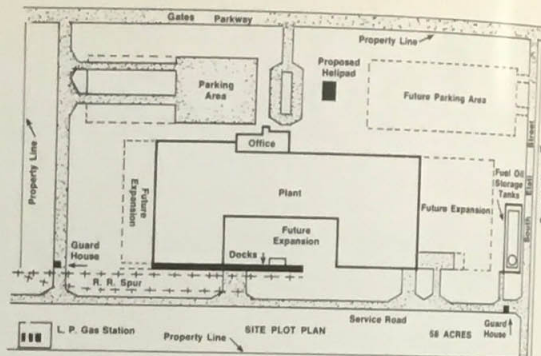
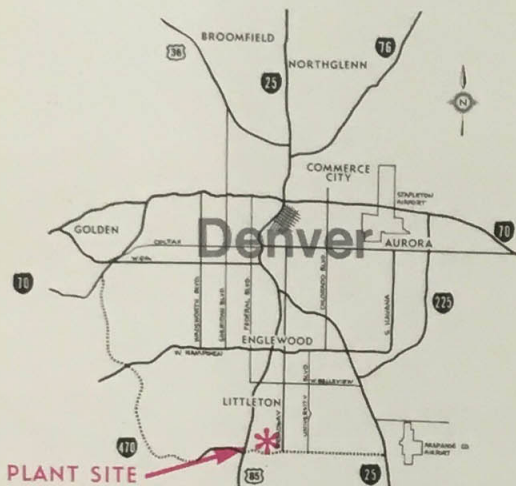
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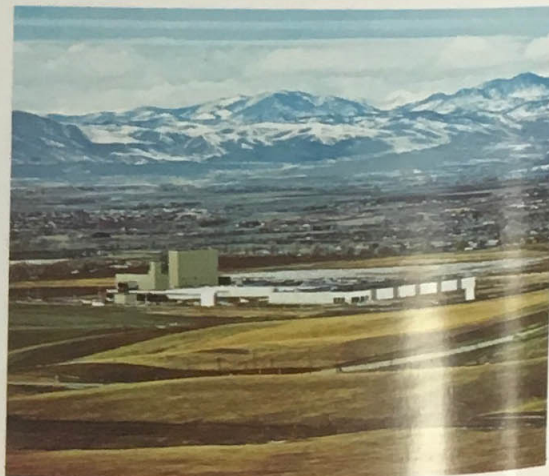
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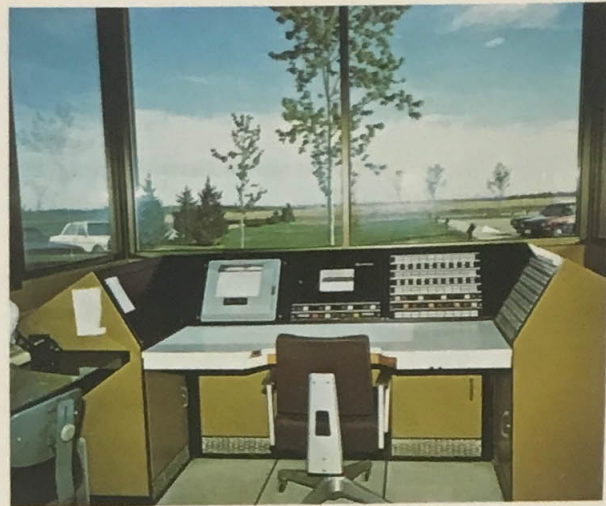
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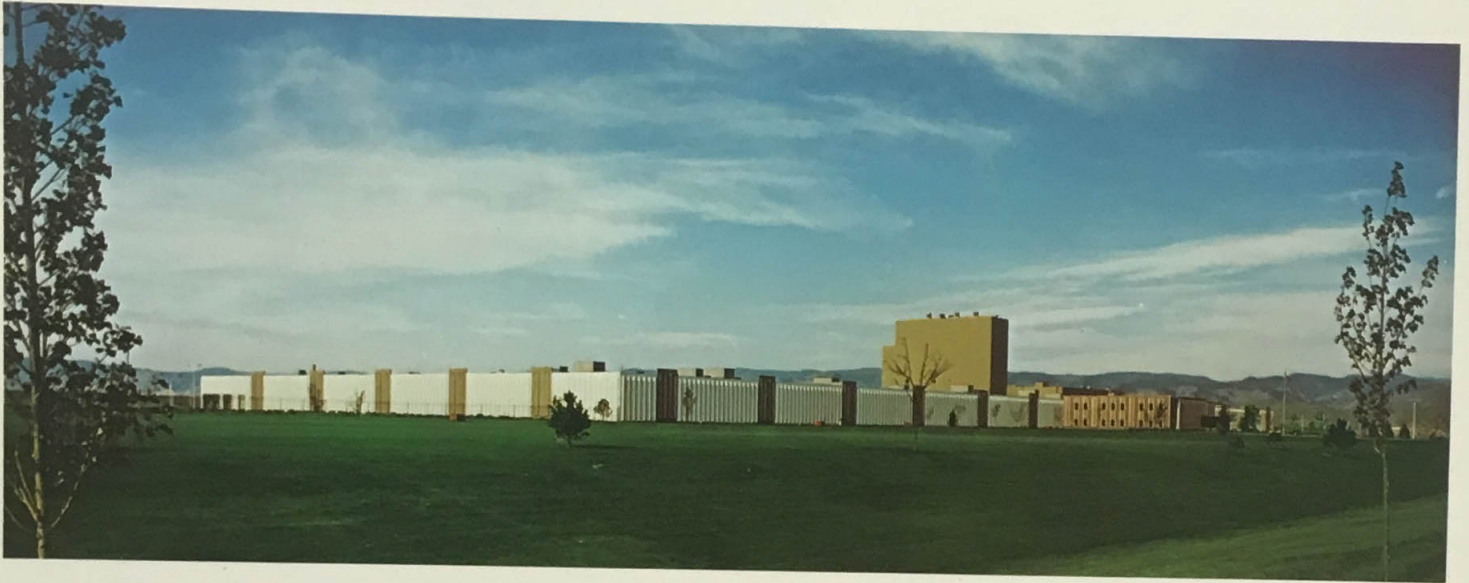
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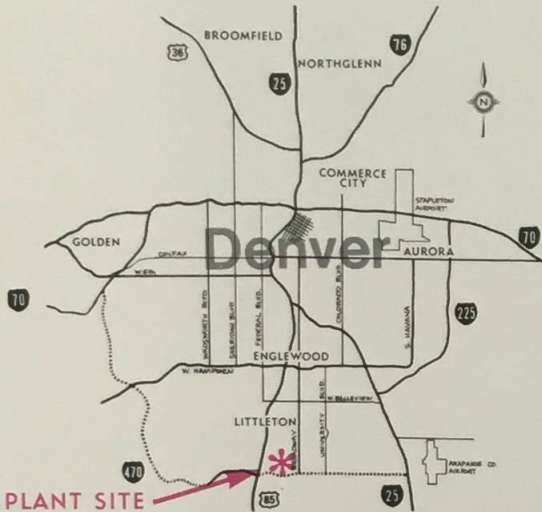
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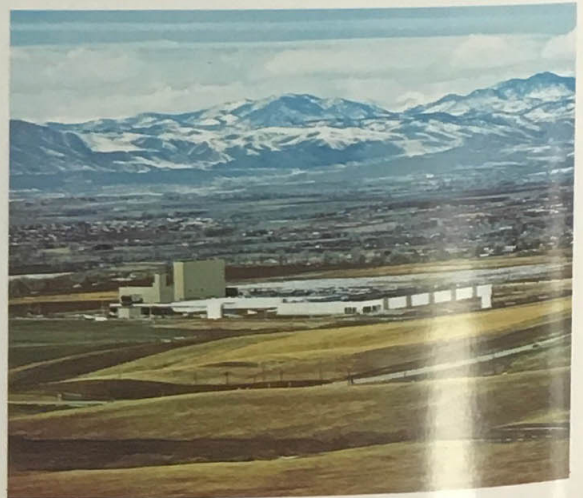
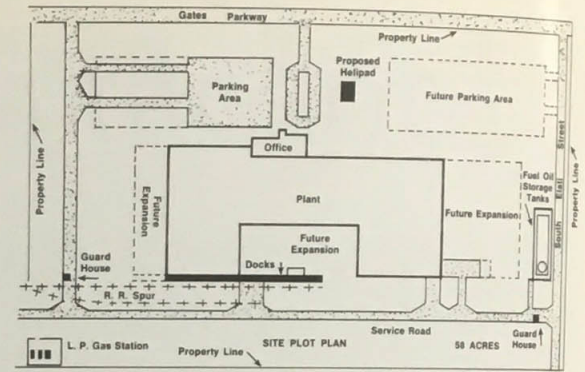
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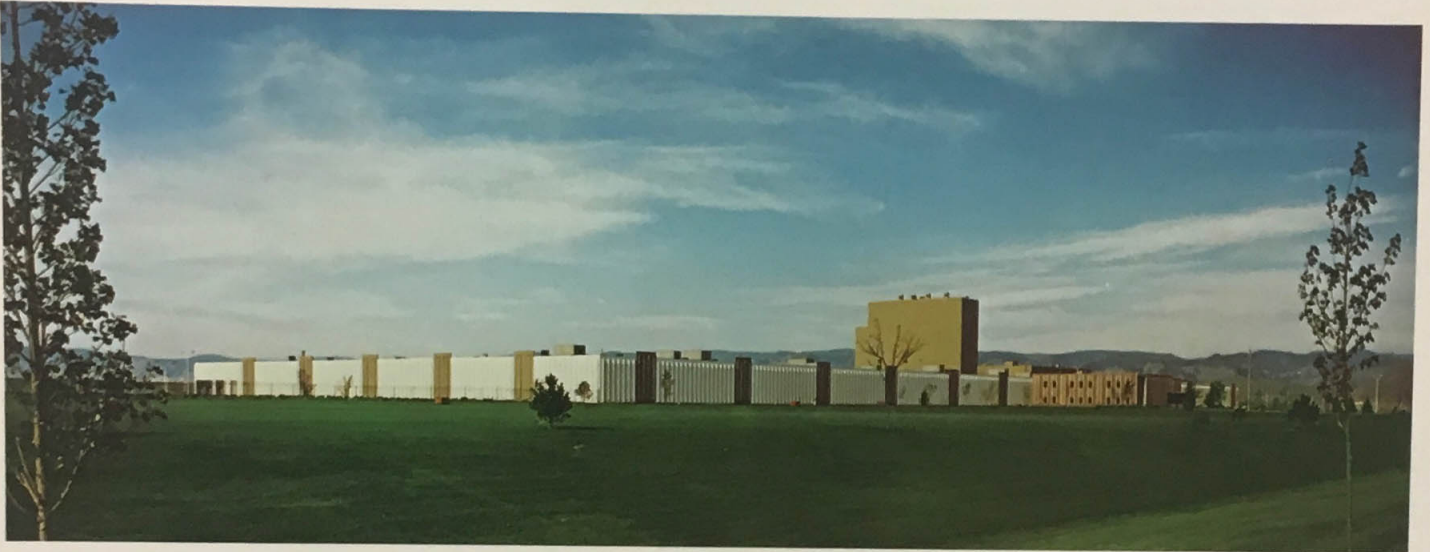
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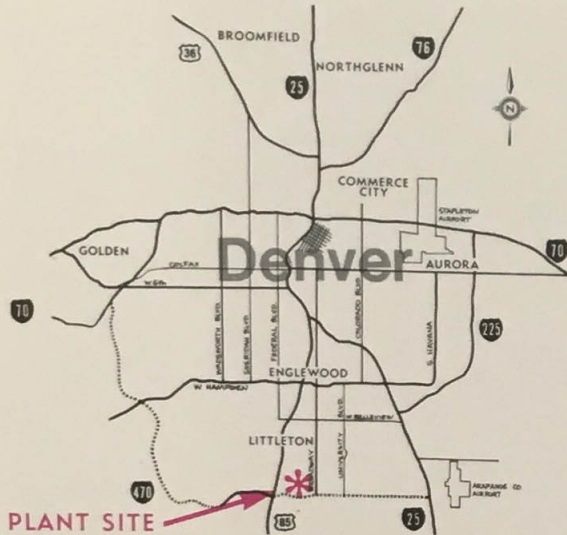
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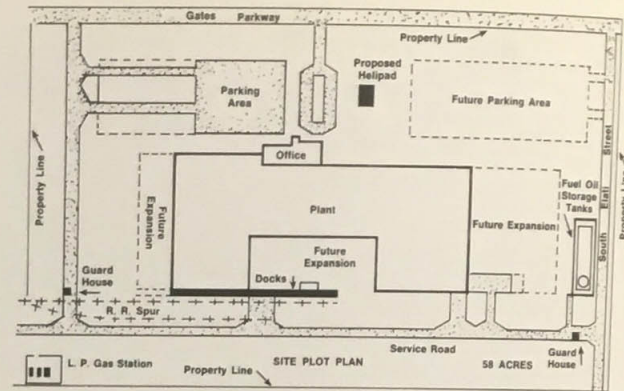
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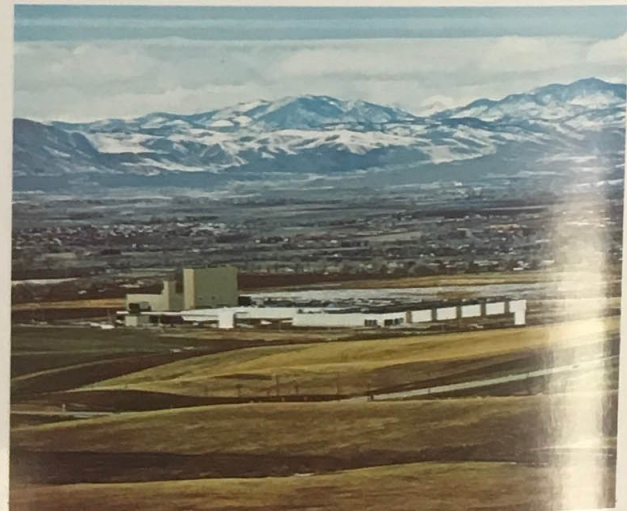
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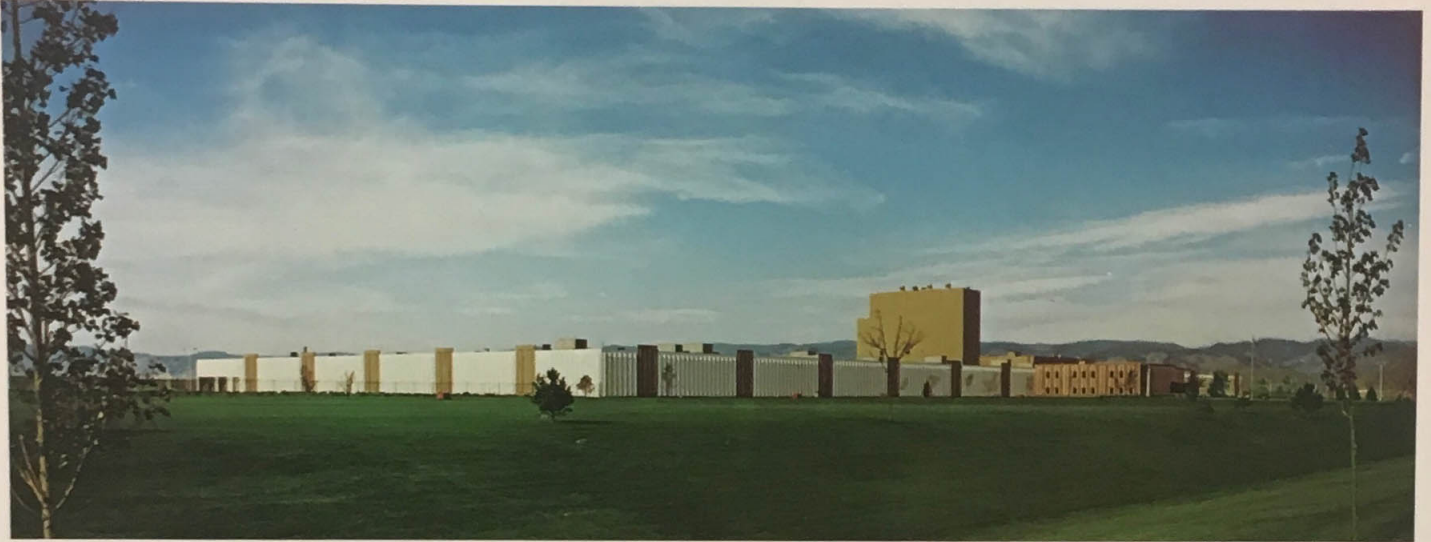
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NEW MANUFACTURING FACILITY

425,000 SQUARE FEET

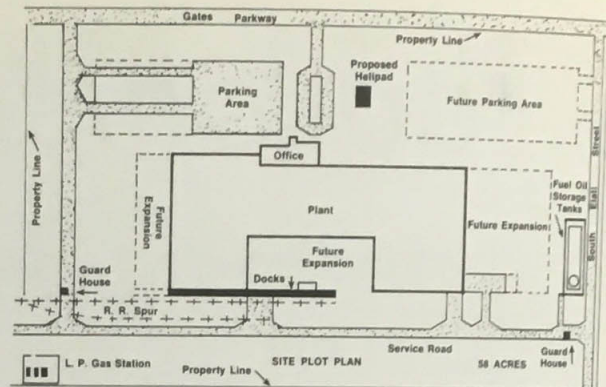
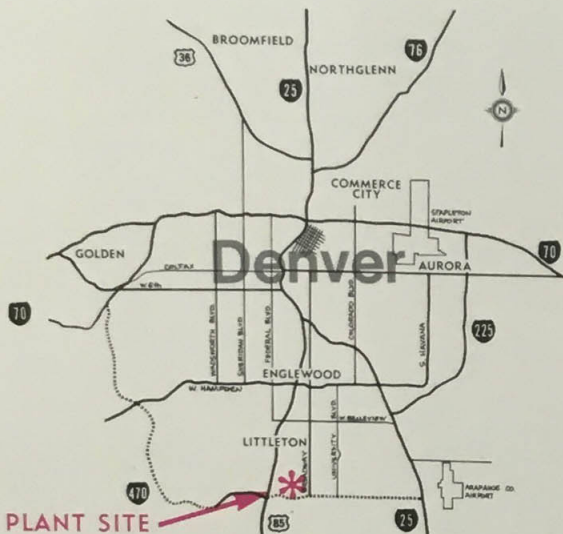
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SITE FACTS

SITE SIZE: 58 acres, rectangular.

TOPOGRAPHY: Level, finish grade gently rolling.

ZONING: Planned Industrial Park -- Manufacturing.

UTILITIES: All underground.

PARKING: Lighted 250-car paved parking area covering 74,000 square feet, room for expansion.

LANDSCAPING: Site well landscaped, and has automatic sprinkler system.

RAIL: Served by Santa Fe Railroad, spur directly to plant, with siding.

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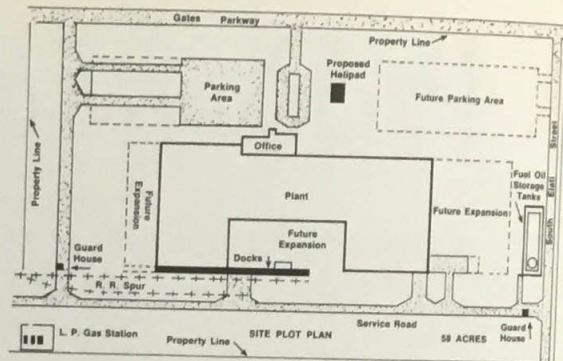
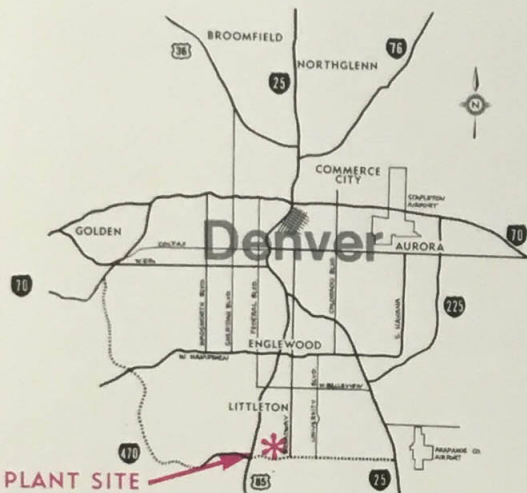
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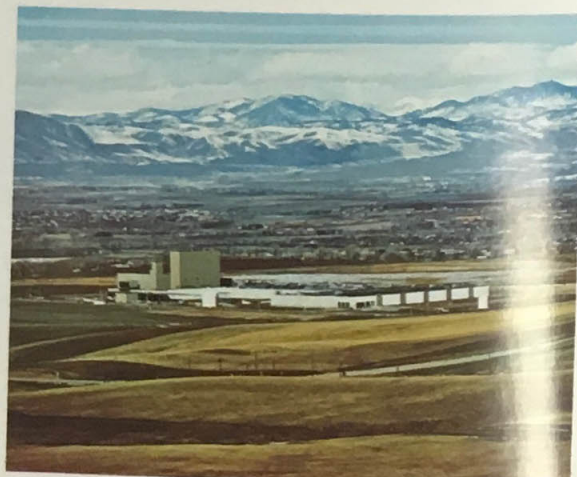
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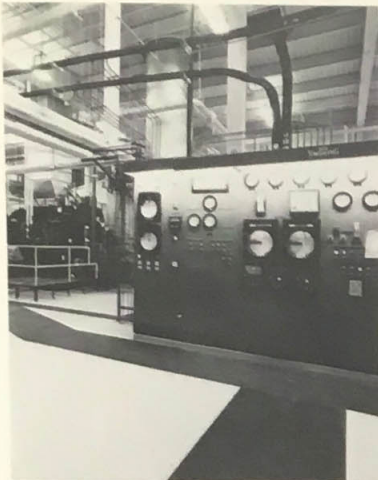
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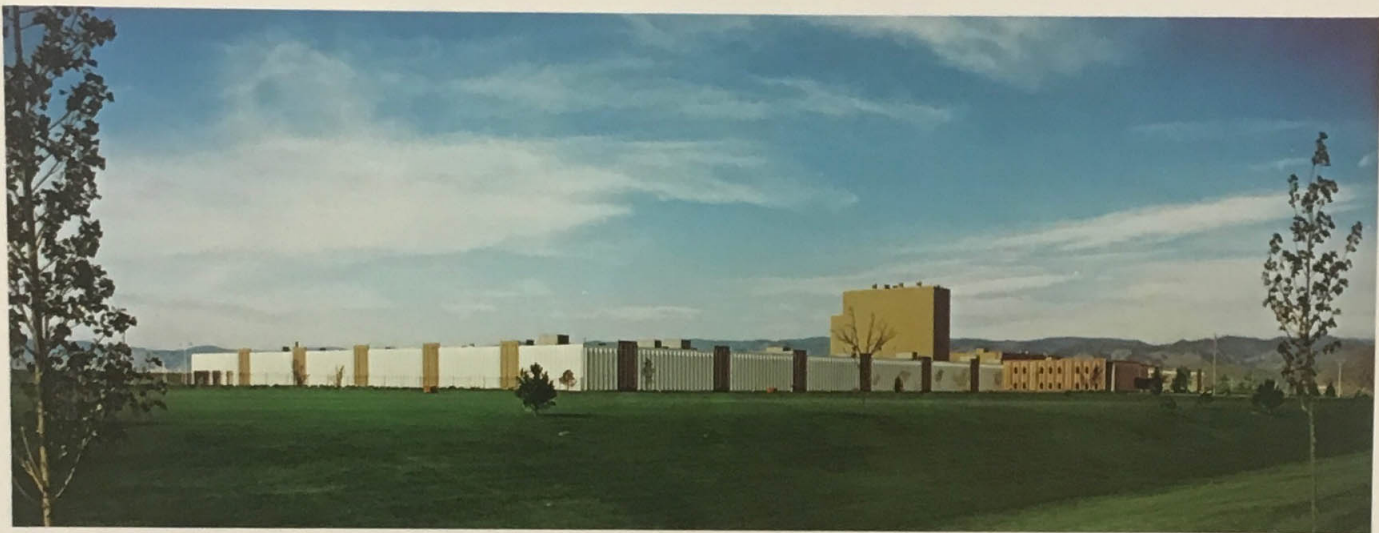
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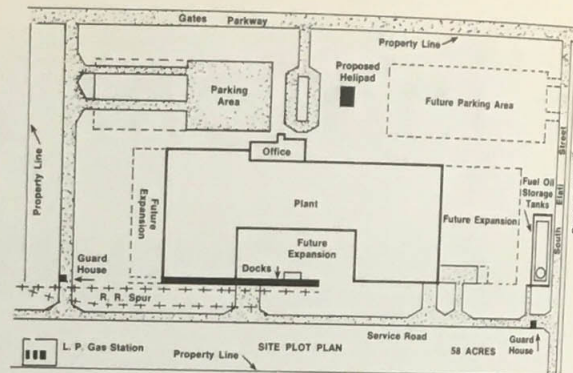
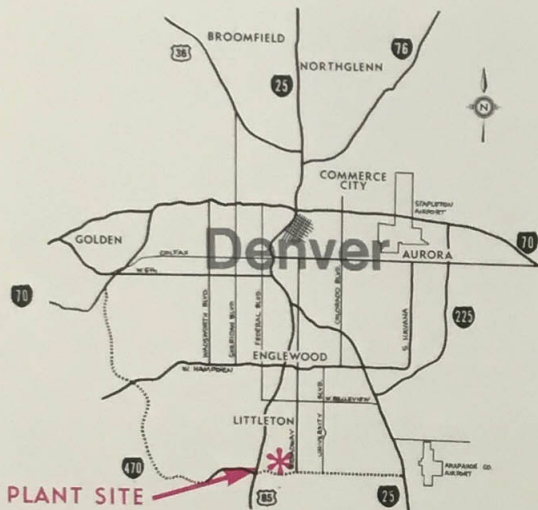
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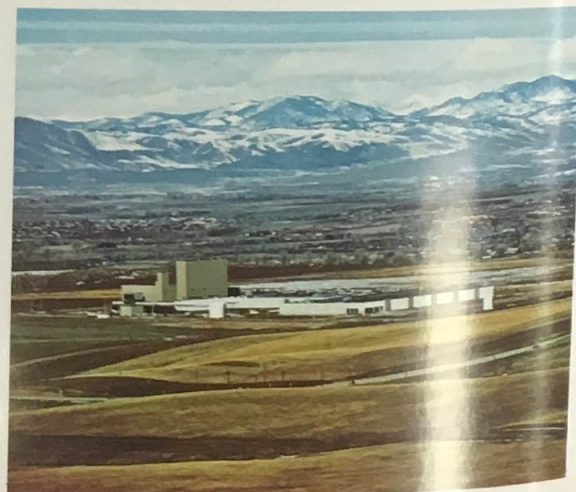
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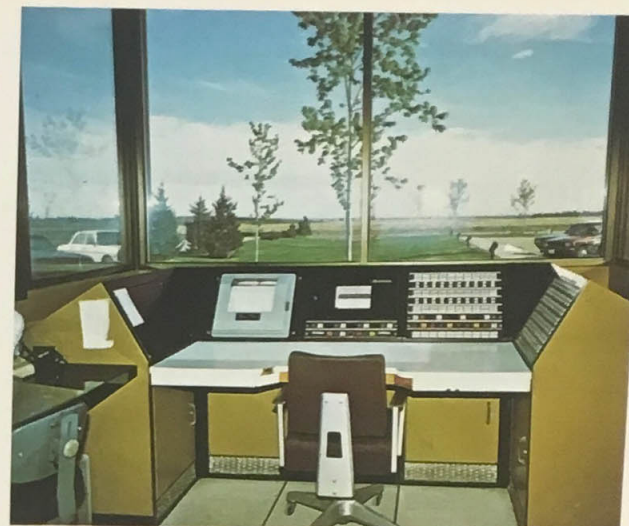




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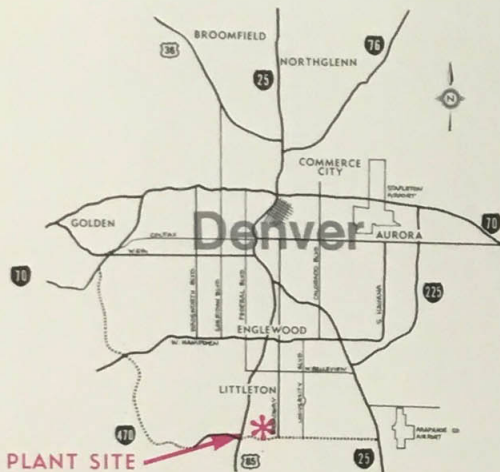
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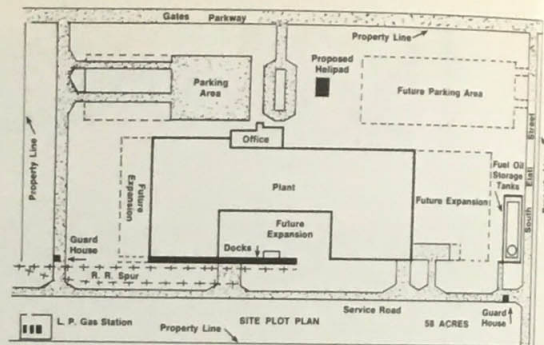
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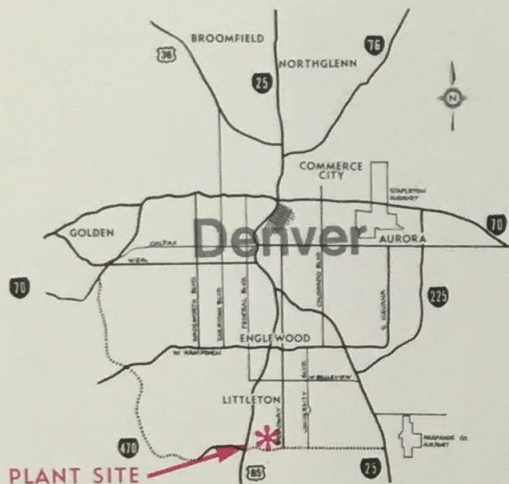
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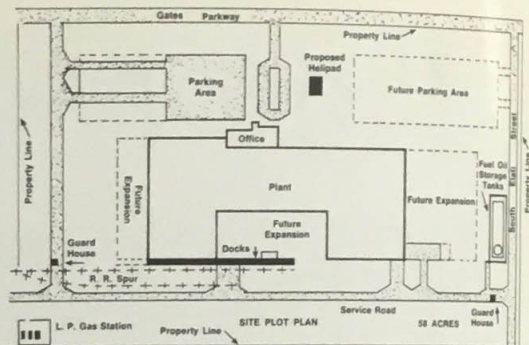
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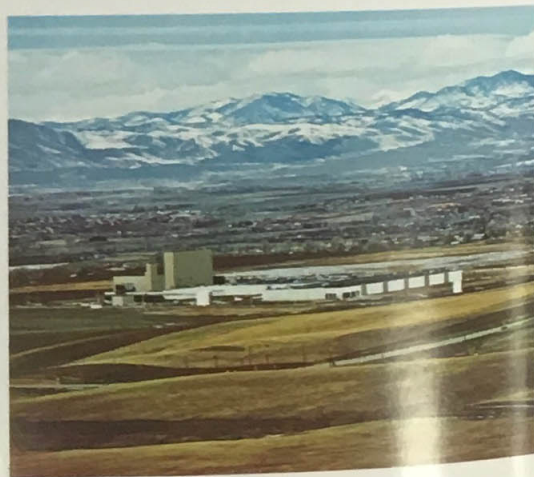
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NEW MANUFACTURING FACILITY

425,000 SQUARE FEET

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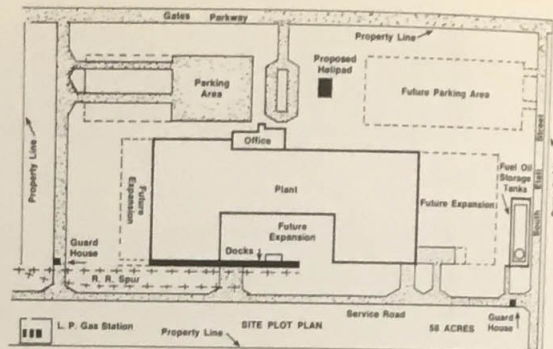
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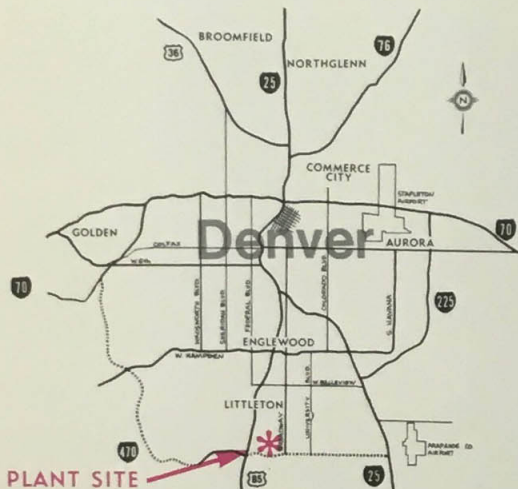
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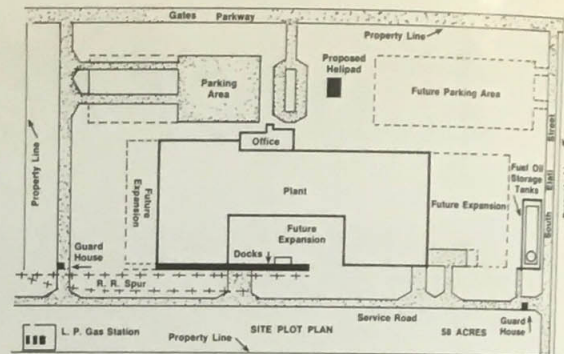
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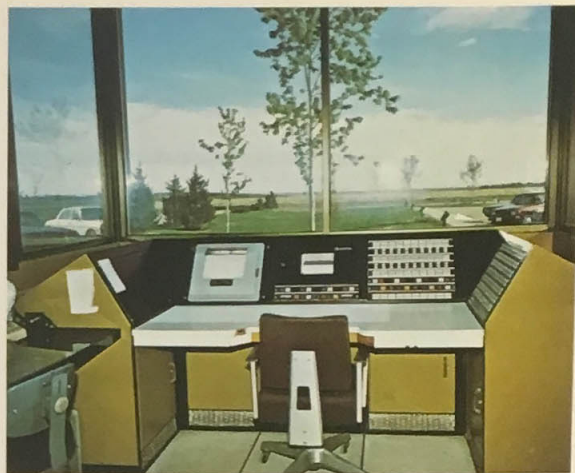




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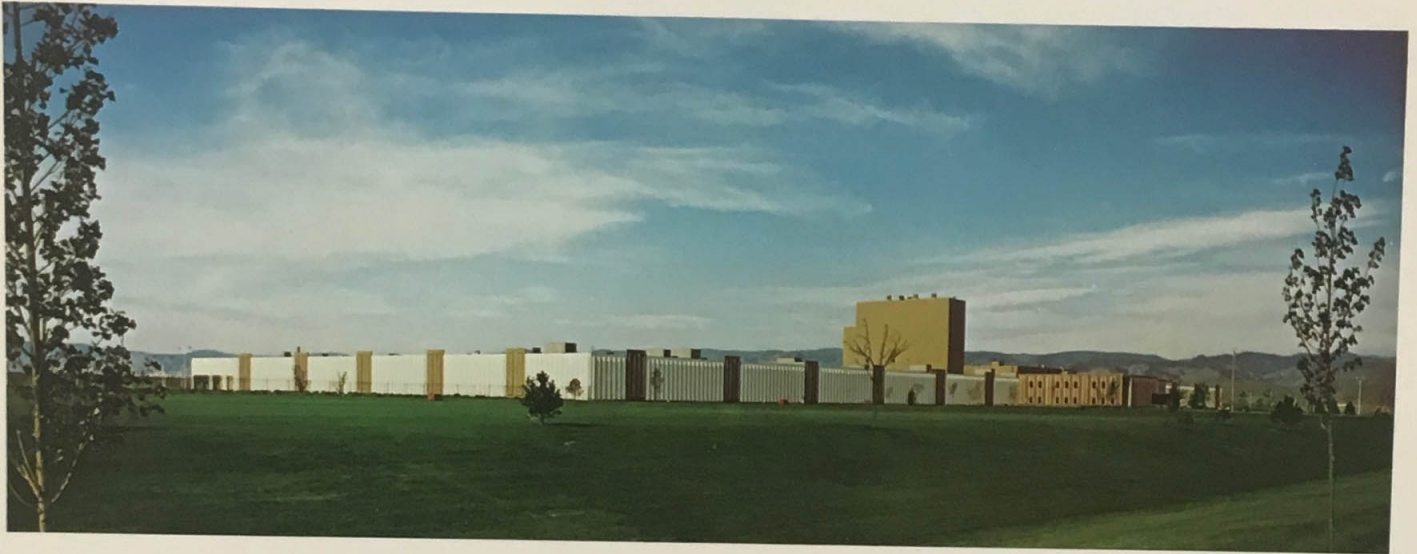
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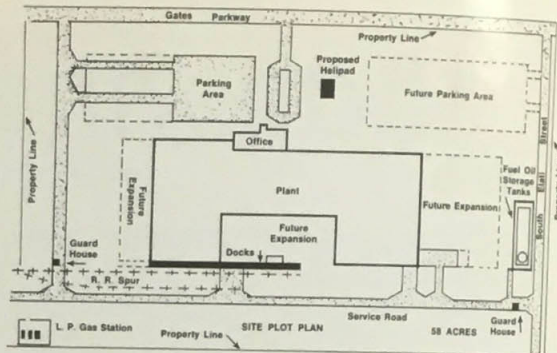
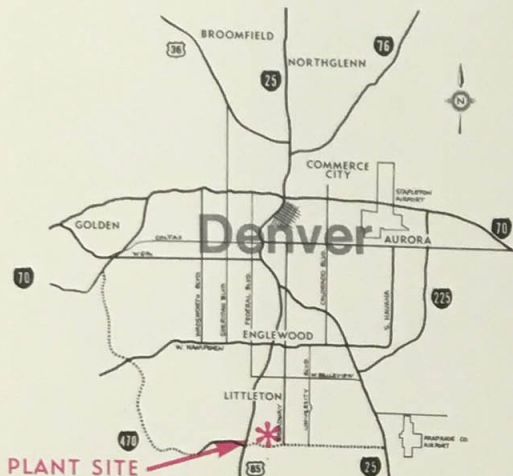
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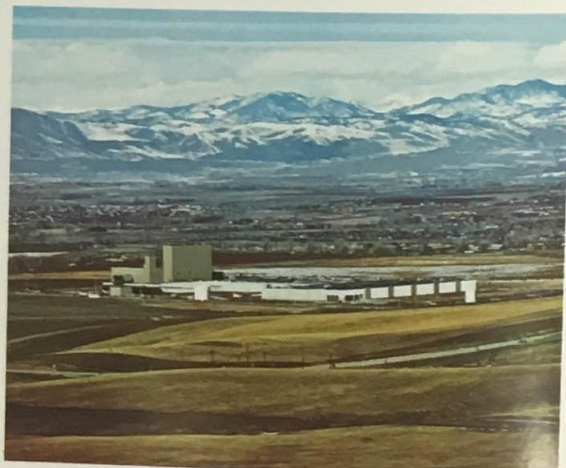
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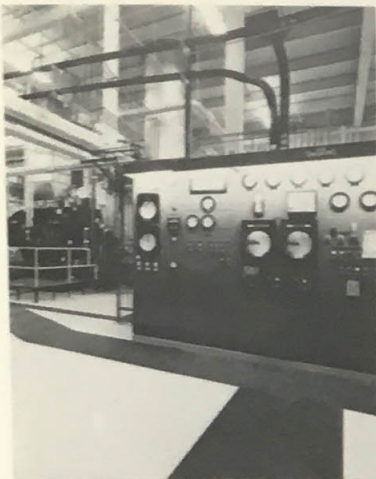
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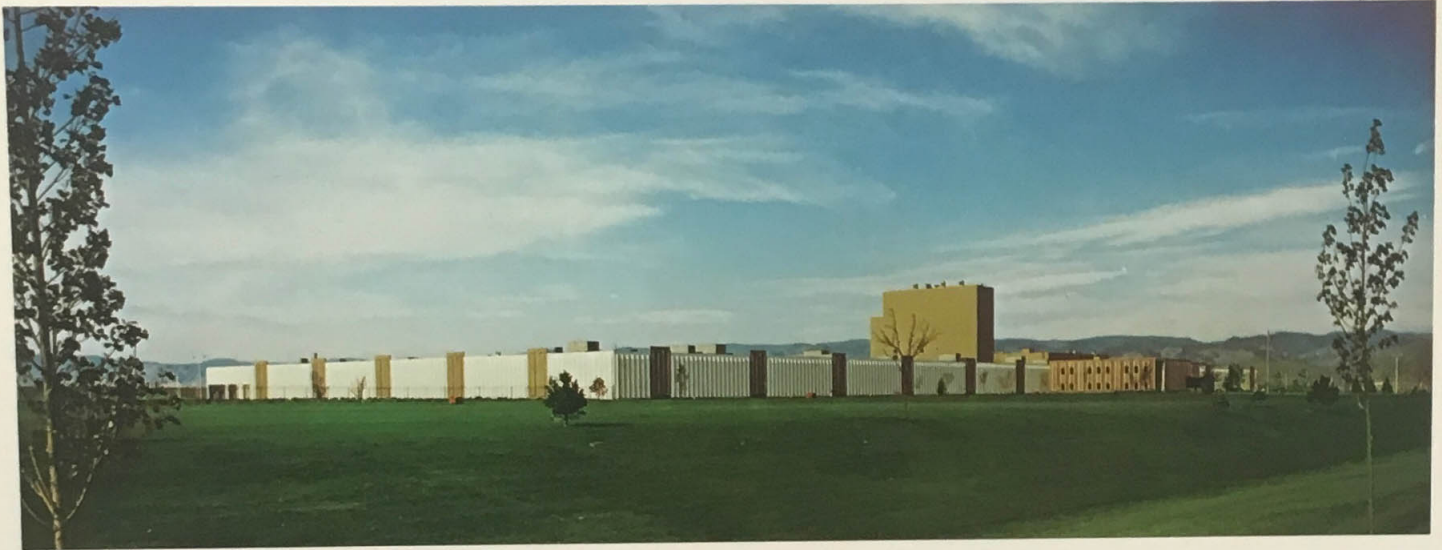
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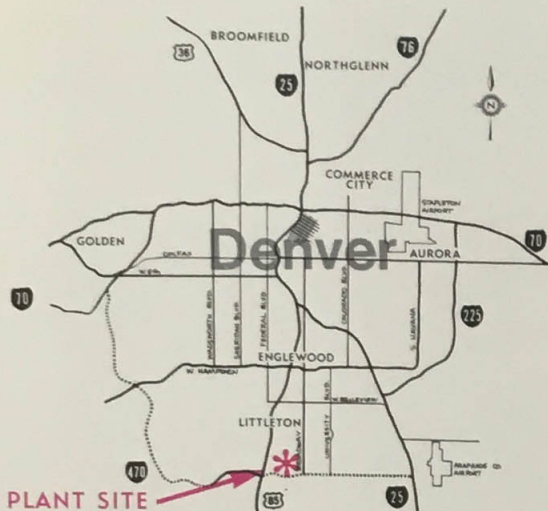
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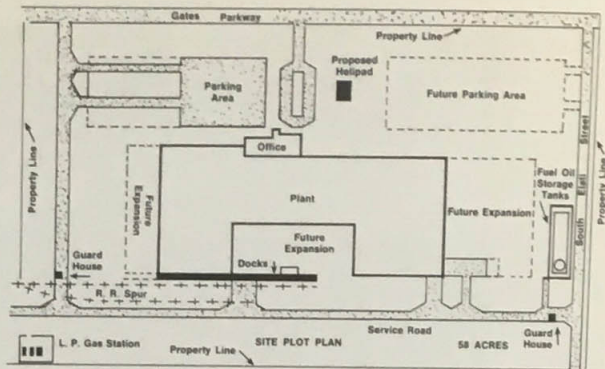
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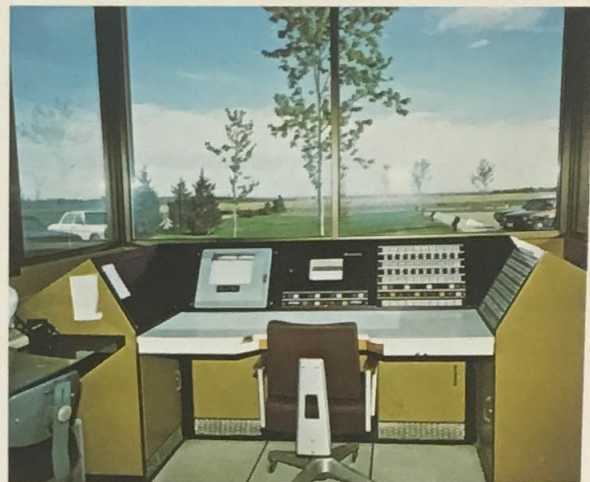




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Fuel Oil: Back-up system.
Propane: Back-up system with vaporizer system.
 - d) Electricity: Provided by Public Service of Colorado
 - 1) Primary Voltage: 13.8 KV, 2,000 AMPS.
 - 2) Wiring: 480V 600 Amp bus duct available.
 - 3) Comprehensive secondary distribution available.
2. Fire and police protection provided by City of Littleton.
3. Telephone: 900 pair cable with 200 service outlets in place.
4. Lighting:
 - a) Fluorescent throughout.
 - b) Candlepower: Manufacturing: 50-80
Storage: 15
5. Heating: Perimeter steam, gas-fired make-up air units.
6. Steam: 60,000 lbs/hr at 350 PSIG saturated.
 - a) Power Plant is equipped with complete water treatment facilities.
 - b) Three Cooling Towers: 5000 GPM, 850 GPM, 500 GPM.
7. Air: 3260 CFM free air at 100 PSIG. (2-1630 Ingersoll-Rand Compressors with 300 HP electric motors.)
8. Sprinkler System: Wet system with fire loop around building. 300,000-gallon water storage and an automatic diesel-powered 1500 GPM fire pump.
9. Storage:
 - a) Fuel Oil: 92,500-gallon storage tank on site.
 - b) LP Gas: 3 - 30,000-gallon capacity tanks, with propane vaporizer system.
 - c) Water: 300,000 gallons for Fire Protection.

BUILDING DESCRIPTION

1. One Building, Two Fire Walls.
2. Floor Space - Finished: 424,649 sq. ft.
 - Office: 22,795 sq. ft.
 - Manufacturing: 390,860 sq. ft.
 - Miscellaneous: 10,994 sq. ft.
 - Unfinished: 47,367 sq. ft.
3. Construction:
 - a) Length: 1052'
 - b) Width: 423'
 - c) Height:
 - 1) Maximum Ceiling Height - 25'6"
 - 2) Clear Ceiling Height in 80% of Area - 22'
 - 3) Ceiling Height in Tower - 125'11"
 - d) Floors: Reinforced Concrete 7" thick with a 6 x 6 - 4/4 Mesh
 - e) Floor Loading:
 - 1st Floor - 700 lbs./sq. ft.
 - 2nd and 3rd Floor - 500 lbs./sq. ft.
 - Office - 50 lbs./sq. ft.
 - f) Bay Spacing: 30' x 60'
 - g) Walls: Cinder Block, Twin TT, Architectural Concrete in Office Areas
 - h) Columns: Steel Beams throughout.
 - i) Roof: Structural Frame with Steel Joists and Deck.
 - j) Expandable: Three directions.
4. Shipping-Receiving Facilities:
 - a) Receiving Dock:
 - 1) Length: 360' Covered; 150' Uncovered.
 - 2) Five Receiving Doors.
 - 3) Two Railroad Tracks with Six Unloading Spots.
 - 4) Unloading Facilities: Kelly RR Dock Boards - Portable Slip-in Ramps.
 - b) Shipping Dock: Eight Doors in Southeast Corner.



Downtown Denver in background

This beautifully maintained facility was built by Gates Rubber Co. and finished in 1971. Tires were manufactured in it until late in 1973, at which time Gates decided to discontinue the manufacture of tires. As a result the property is offered at a tremendous saving to a user.

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Litterton Faculty file

Present Dinner Mount. etc

Why not use a leased commercial facility instead of building a new mint?

- Mints are special purpose facilities
- Buildings should follow the form of the function
i.e. - lay out effective industrial production lines and then,
put envelope around to provide appropriate environment
- Special features
 - Security
 - Storage vaults
- Result is that buildings are not readily adaptable for other uses

Above, plus long expected use (75 - 100 years) means that there are no advantages for using leased or lease/build facility. In fact, the advantages to the taxpayer are all in favor for having a Government-owned facility.

Why not expand present Denver Mint?

- Present was completed in 1904 and in actuality is an obsolete facility
- It is not feasible to expand the present Mint to produce a modern efficient industrial production process.
- The Mint is located on a small downtown site surrounded on all four sides by expensive developments. City and County buildings are to the east and south (presently under construction), a large motel is to the north and the Rocky Mountain News facility is to the west.
- Now is the time to move to a site large enough for short-term requirements plus providing ample real estate for future expansions. The proposed site in Park Hill should be adequate for the next 100 years.

Frank W. Rhea

Vault space - present Denver Mint

Dick Lord has researched the As-Built Drawings and reports the following regarding Vault Space in the present Denver Mint:

There are (24) vaults in the Denver Mint of which only the following are used for coin and bullion:

<u>Vault</u>		<u>Present Use</u>
I Vault	1600 Ft ²	Finished Coin
N Vault	1160 Ft ²	Finished Coin
R Vault	2600 Ft ²	Finished Coin
	5360 Ft ²	
J Vault	1600 Ft ²	Gold and Silver Bullion
O Vault	1600 Ft ²	Half full, unrefined M & R
	3200 Ft ²	bullion and some refined gold

Present Dinner Mount File

New mont. etc. file

NEW DENVER MINT

PROJECT DESCRIPTION

The new Denver Mint will be primarily an industrial/manufacturing facility with the mission of producing domestic coins ranging in denomination from 1¢ through 1\$, plus some production of proof coins and medals. The Mint will perform essentially all functions involved in coin production, starting with the receipt of virgin metal and proceeding through the flow process steps to the production, storage, and shipment of finished coins and medals. Necessary administrative and production support space and facilities are to be included in the Mint, including the accommodation of public visitors.

The following specific functions/space requirements are to be included in the new Denver Mint:

(a) Basic Functions

Melting and casting, ingot hot rolling, scarfing, strip intermediate rolling, strip finish rolling, strip slitting, blanking, cleaning and annealing, blank upsetting, coining, counting and bagging, and coin storage.

(b) Direct Support Functions

Assay and quality control, die production from the Hub stage, building and production equipment maintenance and repair, shipping and receiving (coinage metal, coins, and supplies) and warehousing.

(c) Administrative Support Functions

Mint Staff (Superintendent and Deputy Superintendent, Accounting and ADP, Personnel, Supply and Purchasing, Safety and Security), visitors gallery, numismatic sales, cafeteria, conference rooms and training areas, vehicle parking (employees and visitors), and other miscellaneous office space.

The new Denver Mint is to be designed and constructed to meet the following production parameters:

- (Notes: (1) Based on 2 shifts per day, 5 days per week, 240 days per year.
- (2) The facility will be planned to provide for maximum reasonable expandability.)
- (a) Domestic coins - 7.7 billion coins per year, ranging from 1¢ to 1\$, of which 7.0 billion will be pennies.
- (b) Proof coins and medals - 35 million per year.
- (c) Melting and casting - produce ingots for concurrent annual production of 9 billion bronze 1¢ coins and 1.5 billion cupro-nickel 5¢ coins. (This process will be operated three shifts per day.)
- (d) Strip preparation - annual production of strip for 9 billion bronze 1¢ coins and 1.5 billion cupro-nickel 5¢ coins.
- (e) Blanking and coining - annual production as per paragraphs (a) and (b) above.
- (f) Strip bonding - will not be included initially, but provisions for future addition of strip bonding facility will be included.

Based upon the production parameters and the direct, support and administrative functions listed above, preliminary planning to date indicates that the new Denver Mint will require a site with a minimum of 25 acres, building space of approximately 500,000 square feet, and parking for about 1,000 private automobiles. The estimated total cost of the new Denver Mint (exclusive of architect-engineer services, site acquisition costs and start-up and run-in costs) is \$45-50 million, of which approximately \$20-25 million is for procurement and installation of production equipment.



OFFICE OF
SUPERINTENDENT

THE DEPARTMENT OF THE TREASURY

UNITED STATES MINT

DENVER, COLO. 80204

February 29, 1972

Mrs. Mary Brooks
Director of the Mint
Treasury Department
Washington, D. C. 20220

Dear Mrs. Brooks:

Enclosed are various trip reports taken in January 1972, as well as space estimates with attached sketches, plus supplemental information relative to the new Denver Mint site.

Sincerely,

Betty Higby
Superintendent

Enclosures

UNITED STATES GOVERNMENT

Memorandum

TO : Mrs. Mary Brooks, Director
Attention: Dr. Alan J. Goldman

DATE: February 29, 1972

FROM : H. Frost, Jr.

SUBJECT: Pertinent development criteria for new Denver Mint

Enclosed are trip reports to:

<u>Location</u>	<u>Date</u>
Olin Plant	January 11 & 12, 1972
Revere Brass	January 17, 1972
Philadelphia Mint	January 18 & 19, 1972
Franklin Mint	January 18 & 19, 1972

Also included are space estimates dated February 11, 15, and 16 with attached sketches, plus supplemental information relative to the new Denver Mint site.



VISIT TO OLIN BRASS AT ALTON, ILLINOIS
January 11 & 12, 1972

Mr. Ed Ruhe, President
Mr. Dick Barry, Vice President - Operations
Mr. John Hack, Sales and our host
Mr. Charles Heyer, Supt., Production and Quality
Mr. Ed Wedig, Supt., Melting and Casting
Mr. Chuck Smith, Manager D.C. Plant
Mr. Jerry Alleye, Process Engineer

I OUTSIDE STORAGE

Black topped area used for materials storage was approximately 200' x 200' and was used for the storage of virgin metals and the many alloys of scrap which Olin processed. The total fenced area was approximately 700' x 1400'.

Olin Comment:

Olin thought the workable area could be larger, as they were crowded at times in this outer area.

Denver Comment:

Plans should included some outside storage. Probably would not require as much with less alloys to contend with.

II SCRAP AND VIRGIN METALS HANDLING

Materials shipped to Olin come by both truck and railway cars. They have provided dock facilities to unload and load 5 trucks and 5 railway cars at a time, the rail cars backed into the main building. These cars and trucks at times arrive loaded with loose scrap which is unloaded with a front loader type tractor. Virgin metals palletized and handled with fork lift equipment. The fork lifts have been converted to propane gas for better inside use.

Arriving scrap shipments are sampled by hand. If they contain considerable iron contamination they are run over a magnetic separator and bailed there. If clean, the scrap is dumped at a sub-floor level bailer, which was bigger and faster. This was a Lodemann.

Virgin copper was bought in full cathode plates most times. These were carried on pallets to a large Birch shear where they were cut into fourths, the hooks being separated to be used in

2

less critical alloys. Three men operated this shear and re-palletized the slabs. The smaller pieces were then taken to a smaller shear, Canton #3 made by Hill-Acme Co., Cleveland, Ohio, where the slabs became eight pieces to a plate. One man operated this shear with another bringing the copper to him by fork lift. After this cutting the slabs were carried up and dropped into standard Olin bins by a conveyor belt. This material was now ready for Make-Up. This machine required an area of about 40' x 25'.

Olin Comment:

Olin buys copper in full plates because they think they save enough in cost to pay to cut them. The iron separator is also a good piece of equipment for them because of the many sources of the scrap returned and the frequency of contamination.

Denver Comment:

Denver should also consider cutting copper plates. Might be possible to pick up a good used shear as this type of machinery seems to be plentiful. Could see no use of the iron separator for Denver.

III MAKE-UP

At Olin they had a floor level scale of Toledo make. Upon this platform scale was placed a standard bin into which went the different components of the alloy, bailed scrap, copper, zinc, tin, etc. The net weight of these metals was recorded on a card with the melt and alloy numbers. This card was inserted into a slot built in the side of the bin and accompanied this particular material to the end product. These bins were of Olin's own design and were fabricated by a local firm. They were made of heavy sheet iron 5 ft. long x 3 ft. wide x 4 ft. high, heavily reinforced for long wear. The bins were designed to be carried by conveyor track, fork lift or crane. The cost of these bins was high (\$600.00 each) and Olin had many of them. They were also designed with a trap door bottom which could be dumped by picking them up at the middle with a special moveable jaw crane hook. They were also handy to store. We observed them being stored at least 3 high. Make-Up melts were being stored for considerable time inside to be sure of no dampness at the melting furnaces. In the Make-Up area Olin also had several floor bins or stalls to store materials, inside out of the weather. These stalls were built of heavy gauge steel 18' x 18' x 7ft. high and could be worked with the front bucket loader or fork lifts. Make-Up men worked 3 shifts.

Scrap bailing at Olin was done at 3 locations, the iron separator, the sub-floor location and a large Lodemann, which was expensive to buy and also to maintain. Olin recommended a Harris bailer, 3000 lb. per sq. inch, costing \$40,000.00 and up to be used to bail scrap chips from an overhead system originating at the strip milling machine.

From Make-Up storage the standard bins containing materials for melting were placed on an automated conveyor track where they were carried to an elevator and raised to the melting level where they automatically tracked to their proper destination by a trigger system at track and on the bins. The bin was then picked up by the furnace operator with a gantry crane and placed on a vibrator furnace feeder, Model FP 36240 made by Carrier. Frame and hopper was made by Olin. Total cost each unit \$20,000.00.

Olin Comment:

They were well pleased with this handling and make-up system. The only dissatisfaction again was lack of space.

Denver Comment:

This all looked very good for Denver, would not need near as many make-up bins as they required.

IV FURNACE CHARGING AND MELTING

Furnaces were fed by vibrator hoppers into a chute leading to the charging port of the melting furnaces and if needed pushed into the molten metal by a hydraulic plunger built into the cover of the furnace, which also had exhaust pipes to carry smoke and fumes from the area to the bag house. These furnaces were Ajax 12,000 lb. capacity of which 8000 lbs. were poured every two hours or less. They were 550 k.w., low frequency, 60 cycle, channel core type, with air cooled inductor coils. The inductors had 2 blowers to insure proper cooling in case one of the blowers failed. Also two hydraulic cylinders were installed on each furnace to be sure of tilting in case of trouble. The recommendation was made by Olin that Denver make furnace leads easy to get to for furnace changing and to bring them in to the furnace a a position to prevent burning from hot metal spills, also build a fire brick lined spill tray under each furnace. The furnaces had recording pyrometers and operating recorders (Esterline Angus, Indianapolis) on each furnace, which they recommended be placed in a safe, clean place away from heavy vibrations. Two men plus a foreman operated 5 melting furnaces

and one holding furnace. The furnaces were operated on a three shift basis and held over the week-end at near capacities and only slightly less than pouring temperatures. The melted metal in the furnaces was covered with graphite in both the melting and holding furnaces for Bronze. For Cupro-Nickel the metal was covered with burned out charcoal in the melting furnace and $\frac{1}{2}$ inch of lamp black in the holding furnace. The lamp black was used to keep the carbon content to .04% or less, thus preventing cracks during the hot rolling of cupro-nickel.

Olin Comment:

Olin was not satisfied with the melting operation, but only after making some of the adjustments recommended to Denver. They were running this equipment hard, up to 600 k.w. instead of 550 k.w. rated.

Denver Comment:

This melting bay arrangement looked very good. Four melting furnaces to a bay probably would do the job for Denver.

V POURING AND CASTING

The molten metal at the proper temperature was poured into the holding furnace (Ajax) via a rammed tee shaped trough 3' x 4' x 10 inches deep. The holding furnaces were 65,000 lbs. capacity, from which approximately 40,000 lbs. were poured into the three molds through a removable rammed trough. The flow to each mold was regulated by a fused silica distributor. The holding furnaces were lined with a combination of fire brick and ramming material. These furnaces only held the heat poured into them. They raised the temperature very little. The holders were rated at 450 k.w. with two inductor coils, also air cooled, and were capable of limping along for an hour or two on one inductor coil in case of trouble. They also had the same back-up features of two air blowers and tilting cylinders. The whole melting bay electrical system was backed up by an independent diesel powered generator in case of regular electrical power failure. The oil to the hydraulic cylinders should be Phos-ester, less combustible, but requires special seals. Heaters on hydraulic oil tanks should be installed if these tanks are subjected to low temperatures.

Casting was done in a semi-continuous way into molds made by Olin of phosphorous deoxidized copper of 85% conductivity. The

rest of the casting equipment was made by Loma. Olin was casting at the rate of 6 inches per minute with Bronze, slightly less for Cupro-Nickel. Olin was casting bars $25\frac{3}{4}$ " wide x $5\frac{3}{4}$ " thick by 25 feet long at the rate of 27 to 30 per 24 hour day.

The Olin casting process was done in what is called an open mold with recycled water sprayed on the mold and bars at high pressure, 1500 gals. per minute. The whole casting process was encased in a metal shell to contain the water, which went through a filtering system to a cooling tower. The caster was equipped with up and down hydraulic cylinders, which was Olin's specifications and also recommended for Denver. They used bronze wear plates, 3 wear plates to each of 3 sides. The 3 bar casting head was pushed aside on a track, then brushed with a hand power tool equipped with a flat wheel with abrasive paper inserted, then dressed with a mixture of lard oil and graphite which was previously mixed with a power mixer. The bars were pushed up ready to be picked up by an overhead crane. It required 2 men to do the casting. Area required for complete melting and casting bay 60' x 60'.

Olin Comment:

This system was working very well, but had been modified considerably by Olin people; furnace leads changed to safer place from spills, double cylinders all around furnaces and molds, spill trays under furnaces, placing running charts and temperature charts in safer places.

Denver Comment:

This appeared to be a very efficient operation and would work for Denver. Possibly 1 less melting furnace per bay and also operating three shifts per day, 5 days a week. Estimated cost of bay \$1,000,000.00.

VI FURNACE BUILDING AND STORING

Furnace life at Olin averaged 3 to 5 weeks requiring a continuous process of changing, rebuilding, curing and storage of extra furnaces. The melting furnaces, when needed, were lifted from their position, replaced with a re-built unit during 1 shift or less. This was done with the overhead bridge crane. Basically the rebuilding or ramming process is the same now employed at Denver. Also, the curing was about the same except they were using a gas fired torch to dry the liners. Three steps were used; a period of air, slow fire, and high fire for curing. Olin had a method of forming the furnace channels which was very good. They

built a core of wood and then rammed the ramming material against this. When completed the wooden core was burned out leaving a cavity or channel for the metal heel. Olin also rebuilt their own inductor coils, taking two days. The holding furnaces were a combination of fire brick and ramming material, but lasted much longer than the melters, a year or more. Olin required 3 to 5 men about 32 hours to rebuild a furnace. Space at Olin to remove old liners 15' x 15' with 30' clearance overhead. The ramming area 20' x 20'. Curing and storage 60' x 60'. All this space was served by the same 30 ton overhead bridge cranes. Olin uses Harris & Walker Refractories C.U. mix.

Olin Comment:

This all worked smoothly for them.

Denver Comment:

As their liner life was short due to the high zinc content of many of the alloys, they required more extra furnaces than Denver would need. Olin had 8 extra melters and 2 extra holders. This would require more space to store than would be needed at Denver.

VII BAR HANDLING

After completion of casting the bars were raised about 2 or 2½ feet by the up cylinders on the molds and then picked up by overhead bridge cranes and carried down an aisle about 150' to an easy down (Salem Brosius) where the bar was placed in a horizontal position on a power track and weighed for the first time after casting. This weight was made on a in linescale which did not slow the movement much. The bar traveled from here by track to the saw (Loma) where the head was sawed off and the bar again weighed. From here the bar proceeded to either a slab milling machine used only for very special alloys, or the pre-heat furnace or to the stock pile for temporary storage. The bar number was painted on the bar at the saw. Olin had two overhead bridge cranes of double hook type 30 ton capacity and 7½ ton capacity, also 3 gantry cranes of 5 ton capacity to supply the furnaces. It required 2 crane operators per shift.

Olin Comment:

Again here were areas that were short of space. The aisle from the molds to the easy down was too narrow. The

space allotted for bar storage was too small, otherwise a good operation for Olin.

Denver Comment:

It was our observation that one more easy down, one for each melting bay would make this a better operation. Denver would not need such tight weight controls. Only the weight at the saw after the topping operation. Also Denver would require 2 crane operators per shift, with less severe climatic conditions. Could be possible to store some bars outside. A gantry crane would be needed in this storage area the same as at Olin.

VIII PRE-HEAT FURNACE TO HOT ROLLING MILL

✓
This was a natural gas fired walking beam type handling 90,000 lbs. per hour or hold 14 bars at a time expelling the bars at the rate of 7 bars every hour. Olin was heating the bars to a temperature of 960 to 970 deg. F. from Bronze and 960 to 980 deg. F. for Cupro-Nickel. This was a good piece of equipment requiring a space of 50' x 50'. It would cost approximately \$750,000.00 and was made by Salem-Brosius. Olin did not run this during the week-end unless the hot mill ran (it was allowed to cool some). After rebuilding, 36 hours were required to start it up, otherwise 16 hours would get it started.

Olin Comment:

Olin was very high on the furnace and considering the possible lack of natural gas in the future and switching to oil. The furnace had two break down spots, the last roll before entering the furnace and the first roll upon leaving. Olin could not keep bearings in these rolls and were thinking about water cooling them. They suggested we take care of this problem when building the furnace.

Denver Comment:

We were also well impressed with this furnace and thought it would work well for Denver, but also thought we should investigate the electric induction furnace for Denver.

IX HOT ROLLING MILL

Bars traveled by roller track from the pre-heat furnace to to the hot mill where they stopped and a surface temperature

reading was taken with a portable type surface pyrometer (Land Instruments, Tullytown, Pa.). After 1 pass a second temperature reading was made. The mill was a Mesta reverse type using 42" x 34" rolls water cooled at the rate of 500 gals. per minute. These rolls were driven by two direct current motors of 1500 h.p. synchronized to power the rolls from stop to 46½ r.p.m. forward and reverse. The motors were converted to d.c. by two 1760 h.p. generators turning at 514 r.p.m.. All the generator and motor equipment was enclosed in a dust free and temperature controlled room, temperature maintained at 95 to 100 deg. F. This mill was operated by 1 operator and 1 assistant using EAM or computer system which required a pre-punched plastic card to activate the system. The operator controlled the strip movement by closed circuit t.v. being able to observe the entire length of strip at all times. The bar was reduced from 5 - 6" thick to .400 to .300 in 11 passes and attained a length of 300' to 400' for Bronze. Cupro-Nickel required 13 passes. Power shears were installed at both ends and was operated by man at central control with vision by t.v. screen. Good stripper plates are necessary to prevent housing damage when bars buckled. Olin had a vacuum unit made by Alvey, St. Louis which worked from a crane hook to pick up defective strip ends.

Olin Comment:

Good equipment, very little maintenance, changed rolls about two times a week, required 3 to 4 hours to change rolls. Only complaint rolls a little small for Cupro-Nickel. Olin runs this Saturdays when needed.

Denver Comment:

Alright for Denver with larger rolls.

X HOT ROLL STRIP UP-COILER

This was part of the mill and was controlled by the operator in central control. This also was made by Mesta. 2600 h.p. would handle .650", normal is 365" to .400". No future annealing is needed with the hot roll operation.

Olin Comment:

Very little trouble with the up-coiler. Be sure strip is cool or it wont coil. This complete unit would cost \$3 to \$4 million dollars (hot roll and up-coiler combined).

Denver Comment:

This being a part of the hot roll operation Denver would have to have one to match its mill.

XI STRIP MILLING

This was done by un-coiling the coil from the hot mill and simultaneously cutting the bottom, top and edges to a smooth surface. The strip was re-coiled ready for the intermediate rolling mills. This machine caused Olin very little trouble. Cutters had to be sharpened quite often causing the mill to be down about 1/3 of the time. It was a Torrington or Torin and required 4 men to run it. It was noisy and will cost \$2 to \$3 million when needed by Denver.

Olin Comment:

A good machine doing a good efficient job. Only problem scrap chip removal which is being corrected.

Denver Comment:

This would work for Denver, but should design the scrap pick up so the blower is behind instead of ahead of pick up eliminating the eating up of blower impellers. Bends in the ducts leading to bailer should be made with easy flowing reinforced bends.

XII FINAL OBSERVATIONS

The Olin building which housed Make-Up process and Storage, Melting and Casting, Pre-heat Furnace, Hot Roll and Up-coiler, Furnace and Parts Storage, Bar Storage, Strip Caster and Slab Mill, Materials handling and Rail Car Unloading is 640 ft. long by 260 ft. wide.

Olin recycles their sweeps, tramp metals and furnace skimmings by using an old furnace, that is about to be rebuilt, melting this material and then pouring into a large Torrington book mold. This bar is then cut into small pieces and distributed among new melts of similar alloys.

Olin had 1 bag house for collecting dust particles from air control of Melting and Casting which was a Wheelabrator to which lime was continuously added to help prevent fire destroying the bags.

Olin Comment:

Olin's biggest problem, seemed, after talking to the several people associated with the plant, was lack of enough space.

One bag house unit was not enough, should have two so that air control could continue when a fire occurred or other maintenance was necessary.

Denver Comment:

Denver must allow for enough space in three important areas: (1) Make-up, (2) Bar storage, (3) Milled coils.

Denver Mint personnel visiting the Olin Brass Plant were W. Darlington, D. Sjaardema, H. Lawrence, R. Lord, L. Heinz, R. Folsom

UNITED STATES GOVERNMENT

Memorandum

TO : Mrs. Betty Higby, Superintendent

DATE: Feb. 22, 1972

FROM : Duane R. Sjaardema, ^{AS} Superintendent, Building
and Mechanical Division

SUBJECT: Trip Report -- Travel to Revere Brass Div., Rome, New York;
the Philadelphia Mint, Philadelphia, Pa.; and
the Franklin Mint, Philadelphia, Pa.

Revere Brass Division, Rome, New York

Persons Contacted:

Mr. Richard C. Tietze, Works Manager, Revere Brass
Mr. Bob Manfred, Systems Manager, Revere Brass
Mr. Ken Davis, Casting Shop Superintendent, Revere Brass
Mr. Doug Chapman, Rolling Mill Superintendent, Revere Brass

General:

The visit was made on Monday, January 17, 1972, accompanied by Mr. Hildreth Frost, Mr. William Darlington, Mr. William Summers, Mr. Richard Lord, and Mr. Mark Major of the Denver Mint; and by Dr. A. Goldman and Mr. Frank Rhea (New Denver Mint Project Director) of the Bureau of the Mint, Washington, D.C.

The visit included discussion sessions and walk through tours of the various operational areas applicable to our activity at the Denver Mint. Operations, equipment and supporting activities were reviewed involved in the casting and rolling processes used to produce bronze and brass strip.

It was stated that much of their casting techniques had been developed in consultation with personnel from Germany who are considered knowledgeable in the area of semi-continuous casting; Dr. Eichmueller was specifically mentioned by name.

The following discussion relates to specific areas of activity which were observed and discussed:

Casting Operations

Revere casts a comparatively large ingot size--5½ inches by 40¼ inches by 25 foot long. This yields usable strip to 39 inches wide to .050 thickness. Revere recommends an ingot cross-section not to exceed an 8:1 ratio width to thickness.

Revere has casting units consisting of three melting furnaces (6,000 lb. capacity, 450 KVA, 60 cy., air cooled, core type, Ajax) and one holding furnace (45,000 lb. capacity, 450 KVA, 60 cy., air cooled, core type, Ajax). Each pour yields 4,000 lbs. leaving



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2,000 lb. heel from each melting furnace and 20,000 lb. leaving 12,000 lb. heel from each holding furnace. The yield is approximately 10,000 lb./hr. from the unit. Twelve melting furnaces are on line with five spares being maintained; four holding furnaces are used and one spare is maintained. Considerable difficulty has been experienced in obtaining satisfactory cores and maintaining them.

Revere has recently been using a vibrated dry refractory lining (Norton VA 112) for their furnaces giving an average lining life of 7.7 million lb., a significant improvement over the rammed wet type refractory originally used and as used in our operations. A Bosch vibrator EW565/1F43 was used in the process. A steel mold is presently used, but a bronze lining is being developed. Furnace rebuilding operations were housed in structure separate from the Cast Shop.

The molds are of the closed water box type furnished by Loma originally as a one piece unit but modified by Revere to a four section lining for a significant reduction in maintenance and replacement cost. They would prefer the open mold design. The lining material is chrome plated electrolytic copper. Loma also designed the tilt up and ingot handling device. The furnaces are at floor level with the ingot being cast to below floor level. The runner box was formed of a castable refractory (Norton 336 or Charles Taylor type) using fibreglass forms to shape the refractory. Casting rate is 9 to 12 inches per minute. Seventy-five cu. ft./min. of cooling water at 55 to 70°F. is used. A 10,000 gallon storage tank maintains the cooling water supply.

Vibratory feeders are used to charge the melting furnaces. These are Link Belt units, size 42, 350 R.P.M., Positive Action are used for this purpose.

Switchgear for the casting units is approximately 5 ft. wide and 10 ft. long per unit and is housed in a room 10 ft. wide adjacent to the furnace area. No air conditioning is utilized. The power factor is adversely affected by the furnace operations but a power factor correction is obtained through the rolling mill operations.

Revere utilizes a specially designed reamer to automatically ream the interior of each melting furnace once per day. This significantly increases the furnace lining life. The design of the reamer is available on request.

Material handling in the casting shop is primarily by gasoline powered forklift equipped tractors handling gondolas. The exhaust of each tractor had a flexible hose to dump the exhaust approximately eight feet above floor level. There was general traffic congestion and noise throughout the building. Each bay of the building was also serviced by an overhead bridge crane. A floor mounted Gantry Crane serviced the ingot saw and storage area.

Ventilation hoods serviced each furnace but were entirely inadequate. Environmental conditions as a result of dirt, fumes, and smoke were very bad.

Pneumatic tubes were used to transport samples of the melts from the furnace area to an analysis lab located remote from the Cast Shop. A sample processing and analysis area approximately 15 ft. by 32 ft. included sample preparation equipment and analysis equipment. The analysis equipment included an Optical Emission Spectrometer supplied by General Electric coupled for direct reading and printout with IBM 1800 computer equipment. Readings and/or signal equipment were directed to the lab, the Cast Shop office and the Furnace control area. An estimated cost of supplying the total analysis equipment package was given as \$300,000.

Rolling Operations

The rolling operations at Revere were housed in a structure remote from the casting operations.

An in-line processing arrangement is utilized in the rolling operations consisting of ingot storage area -- gas re-heat furnace -- lateral conveyor to Hot Roll Mill conveyor -- Hot Roll Mill with Quench Chamber and Shears -- Strip Coil Storage -- Strip Coil Miller including edge milling (parallel to and back toward hot mill operation, U-arrangement) -- Coil Storage -- Intermediate Cold Mill -- Coil Storage -- Finish Mill -- Coil Storage -- Slitter -- Storage.

Mill support equipment (Switchgear and MG equipment) was housed adjacent to each mill but in structures attached to the main structure. These areas had removable roofs and large equipment doors for ready access to the equipment and ease of equipment removal. The buildings were not air conditioned (temperature) but were maintained under positive pressure ventilation utilizing filtered air. Coolant tanks for the mills were housed below floor level.

The Re-Heat Furnace, supplied by Salem-Broesius, occupies approximately 45 x 60 ft. area. It does not have a controlled atmosphere; however, it has 5 zone monitoring equipment to analyze for oxygen and carbon dioxide and determine the presence of a reducing atmosphere. Scaling within the furnace has been a problem because of the intermittent (one-shift) operation. A phosphate ester solution is used as the hydraulic fluid in the hydraulic control on the Furnace. Capacity of the furnace is 90,000 lb./hr. The capacity of the Re-Heat Furnace is the limiting production factor in the Hot Roll operations. Gas consumption is 48,000 cu. ft./hr. Gas shortages have forced a shut-down of the furnace in the past and they presently operate under an imposed ceiling on gas consumption requiring daily monitoring of the usage rate. Revere has considered tankers as a standby gas supply, have also considered auxiliary

burners to permit operation on oil. American Brass Company has recently installed an overhead fired, surface heating, gas fired Pre-Heat Furnace. Revere recommends that we consider this type of equipment for our use.

Transport of the ingots to the Pre-Heat Furnace was by means of an overhead Bridge Crane (22,000 lb. capacity) and Heppenstall Automatic Safe-T-Tongs, Order No. 9369, Capacity 20,000 lbs. The ingots were ejected from the furnace onto a roller-type run-out conveyor transferred laterally on track rollers to position the ingot for feed to the Hot Roll Mill.

The Hot Roll Mill was furnished by Nash as also were the entrance and runout conveyors. Original cost of the Hot Roll Mill and Pre-Heat Furnace was estimated at \$3.25 million (1967). A 250-ft. distance existed between the Hot mill and entrance shear; the same distance applies to the exit shear. There is 270 ft. of entrance conveyor, 330 ft. of runout conveyor. (A 5½" thick, 25 ft. long ingot rolls out to approximately 250 ft. length at 1/2" thickness.) An Allis Chalmers control module controls the Hot Mill operation and is equipped with TV monitors so that the operator can observe operations close-up and can also control the shears from his control station. The pass schedule (roll to .530 thickness) is manually controlled by the operator; however, the unit has programmed control capability. Nine to fifteen passes are made on each ingot. The edger is preset. The Hot Roll Mill is driven by a 3000 H.P. drive, the Edger by 500 H.P. A 33:1 ratio on the screw-downs gives the capacity for cold rolling on the Mill. The centering guides are hydraulically controlled and about 20 ft. long. Weights of the various units of equipment are 85 tons for the mill, 20 tons for the edger, 132 tons for the DC drive unit, and 32 tons for the MG unit.

The Hot Mill uses 62" long, 36" dia. rolls purchased at 90-95 Schleroscope hardness (95-100 was tried unsuccessfully). Three sets of spare rolls are maintained, one complete with bearings. (This applies to all rolling mills.) An eight hour shift is required to change rolls, partially because the Bridge Crane used for this operation also services other operations in the building. A 75-ton Bridge Crane services this area. The hydraulics on the Mill uses non-flammable ethylene glycol as the hydraulic fluid. A 1% soluble coolant solution is used, circulated at 600 gpm under 50 psig, filtered to 10 microns through a vacuum controlled paper roll filtering unit, serviced from a 5,000 gallon storage reservoir below floor level. The tank has steam coils to maintain the coolant temperature above 60°F. The Quench Chamber is serviced by an 80,000 gallon supply reservoir, from circulation equipment providing 500 and 1000 gpm capacity at 30 psig. The Hot Roll Mill, Quench Tank and Pre-Heat Furnace Switchgear and MG equipment was housed in a 38' by 100' room serviced by 80,000 cfm. input ventilation air through American Air Filter fibre-glass filters. The

air exited to the operational areas through the MG and DC drive equipment. This room, as were all buildings, including processing areas, was heated by infra-red radiant heaters which they have found very satisfactory.

A 100 ft. extension to the Hot Roll Mill Switchgear Room housed the main electrical sub-station for the plant, receiving 132,000 volts from the main power company feeder and breaking this down to 13,200 volts for distribution to the plant areas.

The material passes through an upcoiler before leaving the Hot Mill process. The end of the building stored the coils as received from the Hot Roll Mill and these were held at least overnight before proceeding to the Coil Miller (located across the bay from the Hot Roll Mill). The area was serviced by a Bridge Crane and included an area 60 ft. x 180 ft.

The Coil Miller is a Torrington Unit (very satisfactory) which mills both the top and bottom surfaces and the edges from .015 to .018. Original cost of this equipment was estimated at \$1.5 million. Approximately 15,000 ft. is maximum service life obtained from the cutters between sharpening; 7,000 to 8,000 ft. is the normal service life. One pass is normally required with a feed rate of 40 ft./minute. It was noted that American Brass has recently installed a McKay Coil Mill which has not proven as satisfactory as the Torrington Mill. Revere Brass would increase the capacity of their Upcoiler on the Torrington Mill were they to purchase new equipment; the present coiler can satisfactorily handle .300 gauge material but cannot handle material of 5,000 lbs./in. of length satisfactorily. The coils tend to be loosely wound which causes surface chafing. The coil miller occupies a space approximately 30 ft. x 130 ft. Included with the coil miller is a device set 15 ft. in front of the mill and approximately 3 ft. x 40 ft. used to change the cutter rolls. The coil mill assembly has an estimated total weight of 180 tons. the strip flattener being the heaviest item. The switchgear room for the mill is approximately 20 ft. by 40 ft. A 20 ft. x 60 ft. room houses the chip collecting equipment. The chips are conveyed back to the process area and collected in gondolas. A 10-ton Shaw Box Bridge Crane services this area of the Revere plant.

The intermediate Rolling Mill used at Revere is a Pittsburgh 4-high unit, one way, single stand, driven by a 2,000 H.P. drive unit. The unit has 18" dia. work rolls and 44-inch dia. back up rolls, 44-inch working length. Average feed rate is 200 ft./min. The material is rolled to .090 thickness on this mill. A Mathews chain type floor level runaround conveyor is used. The equipment weight was estimated at 250 tons, the main housings weighing 60 tons each. Revere recommends a cone type mandrel payoff unit rather than the expandable type. They recommend a tandem intermediate mill rather than the single stand or a reversing mill. The coolant is a 10 to 11% soluble type and similar oil is used

in the hydraulic system to minimize possible contamination due to hydraulic leaks. The switchgear for this mill was housed in a 40' x 80' room.

The finish mill at Revere is a Pittsburgh unit, reversing, 4-high, single stand, with 14" dia. work rolls and 42" dia. back-up rolls, 48" face length. The mill has a 1500 H.P. drive which has proven inadequate (would prefer a 2000 H.P. drive). The screws and tension are X-ray controlled. Feed rate is 1000-1500 ft./min. Estimated total package weight of the equipment is 200 tons.

With respect to rolling mills, Revere Brass personnel recommended Nash Engineering as good people to work with. Stone Conveyors, Honey Eye Falls, New York, is recommended for material handling equipment.

The intermediate gauge slitter at Revere is for thicker material than anticipated in our application. They use Yoder furnished equipment capable of slitting .550 to .090 gauge. The blocker can handle to .250 gauge. The drives are 125 H.P. on the slitter, 75 H.P. on the rewind unit and blocker. The unit occupies an area approximately 30 ft. x 90 ft. A Mayfran chopper is used to chop the scrap for maximum bulk in the scrap containers. From our observation a 50-75 H.P. drive on the rewind coiler would meet our anticipated needs. They recommend Torrington as a supplier for slitting equipment.

Support Areas

Revere Brass has a 60' x 100' room located conveniently to the Rolling Mills and housing the roll grinders and coil mill cutter grinding equipment. A 75-Ton capacity P & H Bridge Crane services the area. In addition a 2000 lb. hoist is over the cutter grinder. The roll grinder for the work rolls was supplied by Landes Tool Company, the unit for the back-up rolls was supplied by Cincinnati. Setco Industries supplied the Cutter Grinder, Type SM-GY, Model SPL, 6" wheel size, 3600 spindle RPM.

Revere Brass has done little in the way of ventilation and smoke and fume eradication. They recommend going to the dry type bag-house equipment.

Both Bell Annealers and strand type of annealing equipment was observed and discussed. Our anticipated needs do not include this type of equipment; therefore, it will not be included in this report.

Conclusions:

1. The tour demonstrated that adequate surge or storage areas between process operations is important.

2. The advantage of locating auxiliary equipment structures (switch-gear, MG equipment) for easy access was readily apparent.
3. The poor environmental conditions in the process areas, particularly the casting shop, demonstrated the need for a well designed ventilation system and separation of process areas.
4. The traffic congestion in the process areas primarily due to vehicular movement demonstrated a need for well designed material handling equipment, including generated scrap removal.
5. The product mix at Revere Brass differs from the current production requirements at the new Mint. Equipment power requirements, feed rates and capacities vary with the product being processed; the figures given throughout the discussion are in many instances estimated averages. Of significance are process layouts, space requirements, location and space requirements for auxiliary equipment, and types of equipment.

Philadelphia Mint, Philadelphia, Pa.

Persons Contacted:

Mr. Nicholas Theodore, Superintendent
Mr. Donald Robolino, Supt., Melting Division
Mr. Darwin Young, Supt., Coining Division
Mr. Anthony Leone, Supt., Building & Mechanical Div.
Mr. Anderson, Engineer, Resident Contractor
Mr. Kessler, General Supervisor, Resident Contractor

General:

The visit was made on Tuesday and Wednesday, January 18 and 19, 1972, accompanied by the same personnel with whom the visit was made to Revere Brass.

The visit and tours followed the general format of the visit to Revere Brass.

The general discussion concentrated on areas of inadequacies and design "errors" involved in the construction and operation of the Philadelphia Mint.

Casting Operations

Virgin metal storage and scrap storage areas are insufficient in size. Two areas are available, a 60' x 180' area and a 40' x 100' area. Space could be utilized to better advantage if the lights were raised to permit higher stacking. Access to the areas is inadequate -- dependent on elevators which may be inoperative or may be in use when needed.

There is also an in-process storage area for make-up material of 40' x 135'. Again, access to this area is limited.

Two shears are used to cut the make-up material, Hill-Acme CF 44A AHL-2, driven by 15 H.P. motors. The cutting blade has four cutting edges and can be rotated prolonging the service between being taken down for sharpening. The shears are adequate, however, material handling to the shear is not. A vacuum lifting device to move the material to the shear is not satisfactory because of the surface roughness of the material. The vibrating conveyor, Rex, between shears is very noisy. A Link-Belt bucket conveyor transfers the material from the shears to the in-process storage and seems to be adequate. Recycled scrap conveyors are belt type and have been a source of difficulty because certain types of scrap fail to transport up the inclines and clogging results. The in-process storage area includes four each 10,000 lb. capacity bins and three each 20,000 lb. capacity. These are inadequate in size, a capacity for 36 hours operation is recommended. Vibratory feeders and conveyors, Ajax Lo-Veyor, transport the material to the automatic scales and furnaces. Gondolas, 3000 lb. capacity each, are used for the make-up. Switchgear and transformers are located one floor below the furnace level in a room 60' x 135' by 12 ft. high. Electrical equipment for each furnace occupies a space 8' x 50' by 8 ft. high. The original air cooled transformers were replaced with water cooled units because of inadequate ventilation.

The furnace control panels are located in an enclosure adjacent to the furnace enclosure, a room measuring 8' x 30' by 8 ft. high. There is no direct line of sight to the furnaces and communication with the furnace area is inadequate.

Four each coreless Ajax melting furnaces, 16,000 lb. capacity, 60 cycle, are used. Three casting units (Loma) are used (four are recommended), two are double strand, one is single strand. Two 6,200 lb. ingots are cast from each furnace load. A 0-30" per minute drop rate is available. They recommend that all plumbing be adequately protected from spills and over-runs. The hydraulic upender has been a problem. They do not like the closed mold design. They feel mold changes could be simplified. The mold linings are one piece design, cast copper, chrome plated and must be machined. Replacement cost is \$2,400 each. Mr. Robolino recommends a movable mold carriage assembly for ease of cleaning and maintenance. He also recommends water filled pits. Philadelphia Mint has recently enclosed the melting furnace area to contain the dirt, fumes and smoke generated from these operations; however, this has complicated removal and installation of the melting furnaces. Parts of the roof and side structure of the enclosure must be removed and the crane operator has no direct visual observation of the furnaces as they are being moved from or into position. The furnace rebuilding area was improperly designed. It is an area 28' x 38' x 12' high. The height and area are both too restrictive. Four spare furnace units are maintained. A 20-ton bridge crane services the bay. It is overloaded when required to remove a furnace with a frozen charge; a 30-ton unit is recommended. Ingot handling equipment is American Chain & Cable "Mansaver" with a capacity of 7,000 lbs. A Loma (Hill-Acme) saw is used to cut the ingots.

Hot Rolling Reheat Furnace

Philadelphia Mint uses an induction type reheat furnace. Two furnaces are on-line with one unit maintained as a spare. Temperature rise is very rapid, eleven minutes required to obtain required temperature. The ingots from the casting operation are sawed to half length before entering the reheat furnace--with two furnaces in operation, one 3000 lb. ingot is produced at the rolling temperature each seven minutes.

The reheat furnace has no zone control and the ends of the ingot tend to get hotter than the remainder, the ends have melted on occasion. Clearances around the ingot are minimal, approximately 1" on each side, and a warped ingot can cause problems--the problem would be amplified with longer ingots. There are thirty or more interlocked limit switches per furnace and a switch malfunction can cause a lengthy shutdown while the problem is traced and access gained to the defective switch. As initially designed the unit drew 100% full load on starting and therefore drew a high inrush current. Full load requirements are 1500 amps. at 1000 volts, 60 cycle. The Mint is considering adding reactors to reduce the inrush current. No secondary power protection was originally provided, fused protection has recently been installed. The transformers are not located for easy accessibility and replacing a transformer has proven to be a time-consuming and laborious task; they should have been located to enable them to be lifted out by an overhead crane. The thermocouple temperature sensing equipment has been inaccurate and unreliable, intentions are to go to infra-red type sensing equipment. The thermocouple carriers shook apart from the low frequency vibration. The induction furnaces have been troublesome and have been estimated to be operational only 50% of the time. McLouth Steel Company (Michigan) has similar, but considerably longer, induction furnaces in operation but are also reported to be having difficulty. 360 gpm. of cooling water is required for the unit at Philadelphia; the cooling water system should have filtering equipment, pressure indication and flow indication. It takes four hours to remove a furnace unit and replace it with the spare unit.

Hot Mill

The unit was furnished by Bliss, is a single stand two high unit driven by an 800 H.P. drive unit (1000 H.P. MG set). Mill speed is 75 to 150/300 FPM. The drive unit is underpowered for the work required of it. Rolls are 26" dia., 23" face width. The roll dressing tool is mounted in an accessible area and is difficult to adjust and maintain; it is necessary to remove the rolls to gain access to the stone. The entry guides on the mill come completely together (should not) and have been damaged on occasion due to operator error. The shear at the end of the conveyor line cannot be operated from the mill control platform--it must be operated at the shear site. No remote television use is made, the operator must observe all operations from the control platform. Scrap from the shear is dropped into a gondola in a pit; the gondola, when filled, is removed from the pit with the

overhead bridge crane (not recommended).

Quench Chamber

The Quench Chamber is 50' long, utilizes process water filtered by a Bowser unit, furnished from a 25,000 gallon central storage reservoir and supplied at 60 psig, 0-180 gpm, from a central pumping system. Selective pass through rates are 20, 50, 75, or 100 FPM. It was necessary to add concrete curbing around the base of the chamber to contain the water which leaked to the floor area. An air wipe was added at the chamber exit to prevent the ingot carrying water downstream in the process.

Slab Miller

The rolled strip is milled both top and bottom, no edge milling. A Torrington unit is used and it has been very satisfactory except for inadequate chip removal--chips tend to accumulate in the ducts. The slab miller is located in line with the Hot Roll Mill. Provision should have been made for upcoiling between the units and coil storage if this alternative is required because of downtime on either of the units. Baling of the chips is recommended, Philadelphia Mint pulverizes the chips rather than baling them. A portable cart mounted mechanical device was provided by Torrington to assist in changing the cutter rolls.

Intermediate Mill

A Bliss single stand, four high unit is used, driven by an 800 H.P. drive, 500/1000 RPM. Speed is 0-125, 250/300 FPM. Used 13" dia. x 22" face work rolls, 27" dia. x 22" face back-up rolls. The runaround conveyor is an above-the-floor type similar to that used on the Finish Mill at the Denver Mint. The runaround conveyor (Mathews) has been a source of trouble, coils have tipped on it, have fallen off, it can only be loaded with a forklift, and it has proven structurally too light for the loads imposed on it. X-ray gauging control is used but is not recommended; nuclear gauging is recommended. The entry conveyor to the mill has no guides (they are required). It is difficult to start the coil through the rolls. Air wipes were added to keep the solvent back at the rolls. Exhaust system on the mill is inadequate.

Finish Mill

Two strips (coils) are welded together prior to entering the Finish Mill to increase the total length per finished coil and decrease material handling in subsequent processes. A Bliss 4-high single stand mill is used, driven by a 800 H.P. drive unit, 300/1000 RPM. The entry and delivery maximum feed rate is 1000 ft./min. Work rolls are 8" dia. x 22" face, back up rolls are 24" dia. x 22" face. Tension reels are driven by 150 H.P. drive units which

are inadequate to properly handle cupro-nickel strip (15% overloaded). An in-floor mounted runaround conveyor is used, the coil buggies have had shields added to protect the cylinder rod in event a coil falls from the carriage. It was recommended that conveyor pits be provided with adequate drainage and adequate space to service the below floor level equipment. The coolant used on this mill is 100% mineral oil.

A Bliss slitter unit is installed at the end of the Finish Mill line.

Blanking Presses

Four new Minster presses are in use, they appear to be well designed units. They handle strip to 16" width; carbide die sets are being used with reportedly eight times longer service life between sharpenings than the steel punches and dies. Scrap removal is via below floor mounted vibrating conveyors. Blanks are transported via vibrating conveyors to bucket conveyors to the riddles (screens) to storage tanks and to the annealing furnaces. Access to the feed reels is poor with no provision for coil storage.

Coin Presses

The blanks feed automatically through the annealing furnaces, washers, dryers, to the screens (riddles) to the upset mills, to scales and storage bins. Bucket conveyors (Meyer Machine Co.) transfer the blanks on demand to the feed hoppers of the coin presses. Coin presses are set in lines at 9 feet intervals, six presses per row, two rows per automatic line. Stamped coin is transported via conveyors to storage bins and scales. Each automatic line is limited to running one denomination of coin if full use of the automation is to be utilized. The stamped coin conveyors should have been located below floor level for less congestion and easier access to the presses. Presses should have been placed face to face rather than back to back in rows to enable one operator to serve more machines. Each row of presses is set on a concrete isolation pad 24" thick.

Bag (Sewing) Room

A 50' x 70' bag room is provided. A work force of ten girls is able to produce 10,000 bags per shift.

Storeroom Facilities

A storeroom 78' x 140' was originally provided. Floor space had to be doubled by adding a second level.

Plant Air

Two 845 cfm compressors are installed in the plant. An additional unit is required to carry the load.

Die Manufacturing Area

A 40' x 80' room is used for manufacturing the coining dies. A Cone Automatic Machine Co. Conomatic automatic lathe size 15/8, Serial No. 11330, Model VNA, approx. 9' x 30' is used to cut the bar stock and do the initial shaping.

A Watson-Stillman Press from the Farrell Birmingham Machine Co., No. 11975, 16" ram, 600 ton is used to transfer the Hub imprint to the Die under approximately 150 tons pressure. Two strikes are used in the process, the piece is annealed between strikes.

The final turning of the die stock is performed on a Semi-Automatic Die Lathe, (Premiere Precision from Bracknell, England), Series D605Y-400.

A number is stamped into the die for identification using a Noble West (East Hartford, Conn.), Model 509, bench mounted numbering press.

Annealing and hardening is done in a separate adjacent area, 60' x 100'. Furnaces in this area are an Annealing Furnace furnished by Surface Combustion Div. of Midland Ross Corp., 1800°F. - 1200°F. temperature range, Cat. No. LO 24-60-24, 680,000 BTU/hr.; a general heat treating furnace, Char Mo Atmospheric Furnace, 1850° - 1400°F. range, 190,000 BTU/hr.; and a Leeds and Northrup Homo Furnace, 12 KW.

General Recommendations:

1. Maximum use of movable walls should be made in administrative areas to obtain flexibility in changing office sizes and arrangements.
2. The ventilation system at the Philadelphia Mint has too great an air velocity causing dust and noise problems -- design systems for low velocity movement.
3. Equipment accessibility and removability should be of prime concern in equipment layouts and building designs.
4. The ceiling heights in the Philadelphia Mint in the blanking and coining areas are too high, contribute to the noise problem. They should be lower and designed for noise absorption.
5. Shipping and receiving dock space is far too limited. No space is provided to park waiting trucks. No space is provided for temporary storage of materials as trucks are unloaded.

6. The automated coinage lines require an investment of approximately \$400,000 per line. It is debatable whether there is adequate return on this initial investment considering the additional equipment to be maintained. If automation is considered it ought to be carried through the counting and bagging operations and include automatic weighing of individual bags after completion.
7. In process storage between casting operation and rolling mills should provide adequate space to store a minimum of two weeks' production.
8. Coin press areas should be made a security type enclosed area to eliminate the policing (clean-up) operations prior to non-worked shifts or week-end shutdown.
9. Vibratory conveyors contribute to the noise problem. More use of cleated belt conveyors is recommended.
10. Automated moving of scrap to the recycling point from all scrap producing areas is recommended.
11. Good vault type storage areas for the dies must be provided near the Press Room.
12. Roll grinding at the Philadelphia Mint is done out in the production area--should be done in a closed room to prevent the grinding dust entering the process areas.
13. Equipment specifications were not properly written; included performance requirements but should also have included some specific size parameters (minimum sizes) and make initial start-up the responsibility of the manufacturer. Should include a 30-day equipment performance requirement before equipment will be accepted--guaranteed turn-key operation. No equipment at Philadelphia Mint worked properly on initial start-up, manufacturers had already been paid so problem solutions were required from in-house.
14. Building designs and equipment purchases should be closely scheduled to permit installation of proper foundations, pits, etc. Scheduling should be arranged so building is ready for equipment when it arrives--manufacturers lose interest in providing start-up services if equipment sets for too long without being installed.
15. No acid storage rooms were provided at Philadelphia Mint--had to be added later.
16. Passenger elevators are too slow and not located properly.
17. Supervisory systems (monitoring panels) for heating-ventilating equipment and other plant support functions are not worth the high initial cost unless they are to be properly manned.

18. Light bulbs cannot be changed in lobby without use of high lift equipment and special scaffolding. Small details such as this should not be overlooked in the design and construction phases.

Franklin Mint, Franklin Center, Pa.

Persons Contacted:

Nelson Colton, Director of Operations

Howard Clark, Executive Officer, Dir. of Facilities

General Observations:

The Franklin Mint is housed in a building of recent construction. The exterior of the building is exceptionally attractive. The exterior walls are constructed of pre-cast concrete slabs, split to "brick" size with the "break" surface exposed.

The office areas are all carpeted. Wide use of modular furniture (steelcase) is used in the office areas to make maximum use of available areas and provide flexibility in office areas.

Production areas spread in a U-shape around a centrally located vault area. The Franklin Mint primarily engages in the minting of limited production, specialty, and memorial medals and strict security is maintained because of the precious metals involved.

All production areas were brightly painted, exceptionally clean and floors were covered with asbestos tile. Production machinery is connected to overhead buss bars and utility lines by quick disconnects for quick removal or installation.

Each production area is self-contained to the point of including a limited quantity of machinists' tools to provide semi-independence to each area. Restroom facilities are provided in each area and elevated above these is the office facilities for the area. Employees are given no mid-morning or mid-afternoon breaks, therefore, leave their area only for lunch breaks.

Locker rooms are located outside the security (metal detector) area. Employees carry their necessary personal items to their work stations in clear plastic bags.

The tourist balcony is located centrally in the building at second floor level above the central vault area. Included in the tour route is a theatre used to show a short film on Franklin Mint operations and promote the sale of Mint items. A sales facility is at the end of the tour route.

CONCLUDING COMMENTS

1. My observations would lead me to recommend use of core type melting furnaces, air cooled, used in conjunction with a holding furnace, core type, air cooled. "Open" type molds seem to be the preferred type. An arrangement

with the furnaces at an elevated level with the cast ingot descending to first level is attractive, eliminating the need for tilt devices at each station. Semi-continuous casting is preferred to the "book" mold operation, large ingots of approximately 6" x 31" x 20' to 25' being recommended. A double acting cylinder on the casting unit is recommended; movable mold carriages should be used.

2. Hot Rolling for the initial breakdown is recommended. A definitive choice between induction type or gas type reheat furnaces cannot be made at this point without further study and consultation. Each has advantages and disadvantages. A question arose concerning gas shortages in the future. Mr. Paylow of Public Service Company assures me there is a 10-year reserve supply of gas maintained in our area, there are adequate known sources to meet the required needs for the foreseeable future in this area, and production processes using "firm" rate service are not subject to cut-off during high usage periods. "Interruptible" rate service will continue to be cutoff during high usage periods. Mr. McCormick of Salem Corporation informs me that reheat furnaces are available for dual fuel (natural gas with oil standby) operation but recommends single fuel burners with liquid propane as a standby fuel. Electric resistance type radiant heat furnaces of similar walking beam design as the gas furnaces are also available from Salem. He states that certain studies in the industry recommend the gas reheat furnace for non-ferrous materials and temperatures to approximately 1300°F.; induction type furnaces are recommended for ferrous operations and temperatures above 1400°F. The coil miller should be in line with the hot rolling operation but with an upcoiler located between in the process. Provision should be made for top milling, bottom milling, and edge milling.

3. I recommend dual stand tandem mill for the intermediate rundown mill with an in-floor type carriage runaround conveyor.

4. I recommend a single stand reversing mill for the finish mill. A slitter should be located in line with the finish mill but with bypass provisions to upcoil without slitting.

5. Blanking presses should be sized for 15" strips. A great deal more study is required before a decision can be finalized regarding automating the blanking-annealing-coining-counting operations. Layouts at least should minimize traffic congestion and cross traffic and manual labor in handling materials.

6. The attractive work areas at Franklin Mint seemed to inspire cleanliness and good housekeeping, and the employee morale seemed to be at a high level. The elevated office facilities in the production areas were an attractive feature and should be given consideration in designing the Denver Mint.

7. Scheduling of the building construction and equipment purchases and installation plus adequate equipment specifications if given proper attention at Philadelphia Mint would have saved millions of dollars in construction and start-up costs and avoided many of the start-up delays. These should be given primary attention as the Denver Mint project moves forward.

2/16/72

PRELIMINARY SPACE ESTIMATES - NEW MINT

CONTINGENCY WAREHOUSE

80' x 160' - 12,800 Sq. Ft.

MISCELLANEOUS AREAS

4 Rooms, common and adjacent to operational areas, for employees' use,
each room 20' x 30' ----- total of 2400 Sq. Ft.

TOURISTS' ENTRANCE LOBBY

40' x 60' - 2400 Sq. Ft.

ADM. BLDG. LOBBY

20' x 60' - 1200 Sq. Ft.

W&R SHOWER & REST ROOM FACILITY

48' x 60' - 2880 Sq. Ft.

B&M SHOWER & REST ROOM FACILITY

48' x 60' - 2880 Sq. Ft.

COINING SHOWER & REST ROOM FACILITIES

3 Areas 48' x 60' - total 8640 Sq. Ft.
1 Area 24' x 30' - total 720 Sq. Ft.

INCINERATION

24' x 48' - 1152 Sq. Ft.

CUSTODIAL EMPLOYEES' FACILITY

24' x 40' - 960 Sq. Ft.

OPERATIONAL SUB-OFFICES (FOREMEN, ETC.)

12 Areas 12' x 12' - total 1728 Sq. Ft.

2/15/72

PRELIMINARY SPACE ESTIMATES - NEW MINT

COINER'S BAG ROOM

70' x 50' - 3500 Sq. Ft.

COIN STORAGE

3 Two-Level Vaults, 60' x 165' - 59,400 Sq. Ft.

CONFERENCE ROOM

24' x 36' - 864 Sq. Ft.

ADM. BLDG. RESTROOMS

2 Rooms, each 20' x 24' - 960 Sq. Ft.

CAFETERIA

4000 Sq. Ft. has been suggested; however, guidelines for new buildings obtained by Mr. Vander Veer indicate the following specifications for a one-line cafeteria with a seating capacity of approximately 400:

Dining Area:	2600 Sq. Ft.
Counter:	600
Kitchen, Storage & Office:	6400
	<u>9600</u>

ACCOUNTING

Budget & Acctg. Officer:	288 Sq. Ft.	(12' x 24')
Asst. B&A Off. & Secy.:	288	(12' x 24')
Gen. Office:	960	(40' x 24')
Storage:	288	(12' x 24')
Payroll:	384	(16' x 24')
Data Processing:	960	(40' x 24')

(FLOOR PLAN PENDING)

4032 ~~3168~~ ~~3648~~

2010
2016
4032

<u>SUPERINTENDENT</u>	-	24' x 24'	-	576 Sq. Ft.
Sec'y:	-	12' x 24'	-	288
				<u>864</u>

2/11/72

PRELIMINARY SPACE ESTIMATES - NEW MINT

PERSONNEL OFFICE

Reception Room	400 Sq. Ft.
File Room	225
2 Private Offices	540
5 Desk Areas	500
Aisle Space	200
	<u>1865</u>
	1728

PURCHASING OFFICE

16' x 24' - 384 Sq. Ft.

TRAFFIC OFFICE

16' x 24' - 384 Sq. Ft.

CASH & DEPOSITS

Office: 24' x 44' - - - - -	1056 Sq. Ft.
Small Lot Processing: 24' x 44' - - -	1056
	<u>2152</u> (See Plan)

NUMISMATICS

Sales Room:	1296 Sq. Ft.	(See Plan)
Vault:	1080	(See Plan)

COINING OFFICE - 1600 Sq. Ft.

B&M OFFICE - 1344 Sq. Ft.

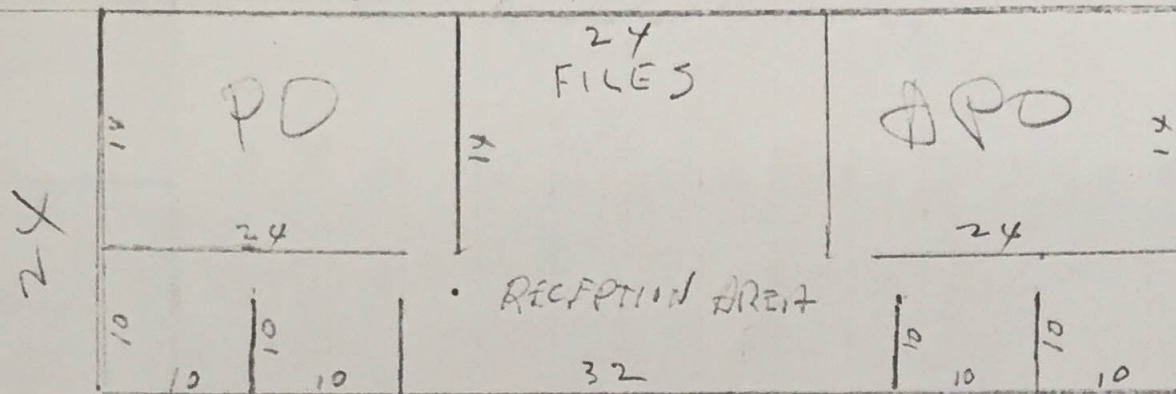
MELTING OFFICE - 1152 Sq. Ft.

SUPPLY ROOM - 10,800 Sq. Ft. (See Plan)

<u>DEPUTY SUPERINTENDENT</u>	- 24' x 24'	- 576 Sq. Ft.
Sec'y:	12' x 24'	- 288
		<u>864</u>

Personnel Office

72



$$24 \times 72 = 1728 \text{ sq. ft.}$$

Accounting Division

Budget and
Accounting
Officer

Asst Budget
and Accounting
Officer

Billion Accounting
Cost Accounting
Appropriation Accounting

Record
Storage

8'

Secy

10'

12' 12'

40'

18' 3'

36x8 59 ft.
1/4" = 2'

Payroll

EAM and/or Data Processing

35'

New Card
Storage

and

Processed Card
Storage

3'

STANDARD OPERATING PROCEDURE

#1 Mesta Hot Mill

V. Procedures

F. Rolling

<u>Alloy</u>	<u>Bar Size</u>	<u>Finish Gauge</u>	<u>Pass Schedule Card</u>	<u>No. of Passes</u>
054	18-3/4x3-7/8xL	.650	#9B	11
	Milled Gauge = 3.625		#9C	11
102	25x5xL/3 (P.C.)	.350	#4	11
			#5	13
104 (P.C.)				
110 <i>Cu</i>	25-3/4x5-3/4xL	.365	#14	11
	" " "	"	#3	13
	29x5-1/4xL*	.350	#4	11
	" " "	"	#5	13
110	29x5-1/4xL*	.450	#4	11
POSIT-BOND <i>Cu for Bonding</i>	" " "	"	#5	13
110	25-3/4x5-3/4xL/2	.375	#2	11
Scovill				
117	25-3/4x5-3/4xL	.365	#14	11
	" " "	"	#3	13
	29x5-1/4xL*	.350	#4	11
	" " "	"	#5	13
122	25-3/4x5-3/4xL	.365	#14	11
	" " "	"	#3	13
	29x5-1/4xL*	.350	#4	11
	" " "	"	#5	13
	28-3/4x5x94"	.350	#17	11 + 2 dummi
110, 129	25x5xL	.350	#4	11
(P.C.)	25x6xL	.365	#14	11
	25x7xL	.365	#14	11
	30x5xL	.350	#4	6
Mold Plate	37-1/4x6xL/2	3.000	#23	6
194	25-3/4x6xL	.400	#2	11
	29x5-1/4xL	.400	#4	11
195	25-3/4x6xL	.500	#2	11
210 <i>Brnze</i>	25-3/4x5-3/4xL	.365	#14	11
	" " "	"	#3	13
	29x5-1/4xL*	.350	#4	11
	" " "	"	#5	13

STANDARD OPERATING PROCEDURE

#1 Mesta Hot Mill

V. Procedures

F. Rolling

Pass Schedule - Card # 5

Number of Passes 13

Bar Size 5 1/4" x 28 3/4" x DC

<u>Pass No.</u>	<u>Gauge as Key Punched</u>	<u>Edging</u>
0	5.250	
1	5.000	Yes
2	4.700	No
3	4.400	Yes
4	4.000	No
5	3.500	Yes
6	2.950	No
7	2.400	Yes
8	1.950	No
9	1.500	Yes
10	1.050	No
11	.790	Yes
12	.550	No
13	.350	No

Special Instructions

This pass schedule used for rich mixes and brass when slipping occurs on 11 pass schedule (#4).

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Date Issued 9/8/69

Date Revised

STANDARD OPERATING PROCEDURE

#1 Mesta Hot Mill and Salem Brosius Walking Beam Slab Heating Furnace

V. Procedures

E. Slab Heating

Alloy: 102 25" x 5" x L/3 (PC)-

104 (PC)

110 25 3/4" x 5 3/4" x 1/2 DC
25 3/4" x 5 3/4" x DC
28 3/4" x 5 1/4" x DC
29" x 5 1/4" x DC

117 25 3/4" x 5 3/4" x DC
28 3/4" x 5 1/4" x DC
29" x 5 1/4" x DC

122 25 3/4" x 5" x BM
25 3/4" x 5 3/4" x DC
28 3/4" x 5 1/4" x DC
29" x 5 1/4" x DC

129 25 3/4" x 5 3/4" x DC
28 3/4" x 5 1/4" x DC
29" x 5 1/4" x DC

110, 129 (PC) 25" x 5" x DC
25" x 6" x DC
25" x 7" x DC
30" x 5" x DC

Discharge Cycle

8' 00" *

Soaking Zone Control (Zones 1, 2 & 3)

925 ± 50°C *

Heating Zone Control (Zones 4 & 5)

850 ± 50°C

1st Pass Temperature (Radiomatic)

880 ± 50°C

* On any length other than a 25 ft. bar, the rolling time controls the cycle. Heating zone temperature must be lowered to prevent exceeding discharge temperature desired.

Special Instructions:

1. All copper alloys can be rolled from 800 to 950°C.
2. Rolling Procedures - See pages 47 through 50.

STANDARD OPERATING PROCEDURE

#1 Mesta Hot Mill and Salem Brosius
Walking Beam Slab Heating Furnace

V. Procedures

E. Slab Heating

Alloy: 210, 220 5 3/4" x 25 3/4" x DC
5 1/4" x 28 3/4" x DC
5 1/4" x 29" x DC

Discharge Cycle

8' 00" *

Soaking Zone Control (Zones 1, 2 & 3)

920 ± 40°C *

Heating Zone Control (Zones 4 & 5)

820 ± 30°C

1st Pass Temperature (Radiomatic)

880 ± 40°C

* On any length other than a 25 ft. bar, the rolling time controls the cycle. Heating zone temperature must be lowered to prevent exceeding discharge temperature desired.

Special Instructions:

1. Rolling Procedures - See pages 47 through 50.

STANDARD OPERATING PROCEDURE

#1 Mesta Hot Mill

V. Procedures

F. Rolling

<u>Alloy</u>	<u>Bar Size</u>	<u>Finish Gauge</u>	<u>Pass Schedule Card</u>	<u>No. of Passes</u>
405	25-3/4x7x94"	.400	#8	15 + 2 dummy
411	25-3/4x7x94"	.400	#8	15 + 2 dummy
422	25-3/4x7x94"	.400	#8	15 + 2 dummy
425	28-3/4x5x94"	.400	#17 / 16A	11 + 2 dummy
425	29" x 5 1/4" x 15 cast	.400	#15	13 START AT 3.00
505	25-3/4x7x94"	.400	#8	15 + 2 dummy
510	18-3/4x3-7/8xL	.650	#9C	11
	Milled Gauge = 3.625" or 3.500"		#9B	11
619	25-3/4x5-3/4xL/2	.300-.350	#20	16 + 1 dummy
	29-1/4x5-1/4xAs Cast	.350	#5	13
638	25-3/4x5-3/4xL	.400	#2	11
	29x5-1/4xL*	.400	#4	11
	" " "	.400	#21	17
667	25-3/4x7x94"	.400	#8	15 + 2 dummy
	28-3/4x5x94"	.400	#17	11 + 2 dummy
669	29x5-1/4xL	.450	#24	19
672	29x5-1/4xL	.400	#16	13
685	28-3/4x3.4x94"	.350	#22	9 + 2 dummy
688	25-3/4x5-3/4xL	.400 & .450	#2	11
	29x5-1/4xL*	.400	#4	11
706	25-3/4x5-3/4xL	.400	#15	13
	29x5-1/4xL*	.400	#16	13
713 <i>Culps-Mi</i>	25-3/4x5-3/4xL	.400	#15	13
	29x5-1/4xL*	.400	#16	13
715	25-3/4x5-3/4xL	.400	#15	13
	29x5-1/4xL*	.400	#16	13
725	28-3/4x5-1/4xAs Cast	.400	#16A	13 + 2 dummy
735	29x5-1/4xL/2*	.400	#7	11 + 2 dummy

STANDARD OPERATING PROCEDURE

Salem Brosius Walking Beam Furnace

V. Procedures

E. Slab Heating

Alloy: 713, 715 25 3/4" x 5 3/4" x DC
28 3/4" x 5 1/4" x DC
29 " x 5 1/4" x DC

Discharge Cycle

12' 00" *

Soaking Zone Control
(Zones 1, 2 & 3)

1020 ± 20°C *

Heating Zone Control
(Zone 4 & 5)

900 ± 20°C

First Pass Temperature
(Radiomatic)

940 ± 40°C

* On any length other than a 25 ft. bar, the rolling time controls the cycle. Heating zone temperature must be lowered to prevent exceeding discharge temperature desired.

Special Instructions:

1. Rolling Procedures - See pages 47 through 50.

Page 42

Date Issued 3/4/70

Date Revised

STANDARD OPERATING PROCEDURE

#1 Mesta Hot Mill

V. Procedures

F. Rolling

Pass Schedule - Card # 15

Number of Passes 13

Bar Size 5 3/4" x 25 3/4" x DC

<u>Pass No.</u>	<u>Gauge as Key Punched</u>	<u>Edging</u>
0	5.750	
1	5.200	Yes
2	4.650	No
3	4.100	Yes
4	3.600	No
5	3.100	Yes
6	2.650	No
7	2.210	Yes
8	1.800	No
9	1.430	Yes
10	1.110	No
11	.830	Yes
12	.580	No
13	.400	No

Special Instructions

Page 65

Date Issued 9/8/69

Date Revised _____

STANDARD OPERATING PROCEDURE

#1 Mesta Hot Mill

V. Procedures

F. Rolling

Pass Schedule - Card # 16

Number of Passes 13

Bar Size 5 1/4" x 28 3/4" x DC

<u>Pass No.</u>	<u>Gauge as Key Punched</u>	<u>Edging</u>
0	5.250	
1	4.720	Yes
2	4.250	No
3	3.760	Yes
4	3.310	No
5	2.860	Yes
6	2.450	No
7	2.050	Yes
8	1.650	No
9	1.300	Yes
10	1.000	No
11	.760	Yes
12	.520	No
13	.350	No

Special Instructions

Page 66

Date Issued 9/8/69

Date Revised 12/29/69

UNITED STATES GOVERNMENT

Memorandum

Assay Div.

TO : All Division Heads

DATE: February 24, 1972

FROM : Fred A. Miller *FAM*
Budget and Accounting Officer

SUBJECT: Recording Time on Planning New Mint Building

It has been determined that it would be advantageous to maintain a record of the amount of time being spent by our staff in connection with preliminary planning and designing of the new Mint building. Though we may not credit this expense out of your existing cost centers, we will have on record the approximate time devoted to this new activity which we will be able to use for statistical purposes.

As a means of providing uniformity in reporting this time, and that of other members of your staff who are involved in the planning, please use Form 1077, Individual Time Sheet, for this purpose. (Initial supply and sample attached.) A separate form should be prepared for each employee who is involved in this activity and each form should be signed by the Division head as "Approving Officer". The forms are intended to cover a two week period therefore, it would be desirable to begin this procedure with the current pay period, February 20 through March 4. It would be convenient to submit the forms with your Time and Attendance reports.

Any questions regarding this procedure should be directed to this office.



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

INDIVIDUAL TIME SHEET

JOHN R. DOE

DATE	JOB or OPERATION NO.												LEAVE		TOTAL HOURS
	New Bldg												An-nual	Sick	
2/20															
3/4/72															
SUN															
MON															
TUES	4														4
WED															
THURS															
FRI	6														6
SAT															
SUN															
MON	3														3
TUES															
WED															
THURS															
FRI	8														8
SAT															
Total Hours	21														21
Amt															

BASE

OVERTIME

N.D. & P.O.T.

TOTAL

Premium

Total

Approving Officer
Richard M. Roe

REMARKS:



OFFICE OF
DIRECTOR OF THE MINT

THE DEPARTMENT OF THE TREASURY

WASHINGTON, D.C. 20220

November 22, 1971

AIR MAIL

RECEIVED

NOV 26 1971

Mrs. Betty Higby
Superintendent
United States Mint
Colfax and Delaware Streets
Denver, Colorado 80204

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

Attention: Mr. H. Frost, Jr.

Dear Mrs. Higby:

Enclosed herewith is a copy of the "Case Study of the new Philadelphia Mint", prepared in March 1970 for the Bureau of the Budget. The reasons for the study are outlined in the initial paragraphs thereof. The contents of the document will undoubtedly be helpful in planning the New Denver Mint.

Please arrange for a review of the case study by all personnel in the Denver Mint involved in the development of criteria for the new facility. It is desirable that such review will have been completed prior to our contemplated visit to the Philadelphia Mint on criteria development.

Sincerely,

Mary Brooks

Mary Brooks
Director of the Mint

Enclosures 1

Background Information

During the period from 1935 through 1940, the Mint attempted to obtain: (a) a new mint in Indiana; (b) a new mint in Philadelphia; and (c) a new mint in Philadelphia. During the 1940's funds were not available for a site for a new Philadelphia Mint, and with pressure from various Philadelphia Congressional interests, at least 15 sites were given consideration by Public Buildings Service. Political pressures continued for more than a year without reaching a compromise on a site; the funds became unavailable, and the project was dropped.

During the mid-1940's and the 1950's, the Denver Mint and the Philadelphia Mint were enlarged and partially revamped, and larger production equipment was being installed, increasing the capacity of these two plants to the neighborhood of 100 million coins per shift year, with a potential capacity

H. Frost
Copy to: Chas. M. [unclear]
[unclear]
[unclear]
[unclear]



Keep Freedom in Your Future With U.S. Savings Bonds

3/24/70

TREASURY DEPARTMENT
BUREAU OF THE MINTCASE STUDY OF THE NEW PHILADELPHIA MINTReasons for the Study

A comprehensive review and analysis of "Coin Requirements and Capacity in the Seventies: A Study of the United States Mint" was completed by a committee of Treasury officials in May 1969. The committee determined that coinage requirements will continue to increase, exceeding 9 billion coins in 1975, and 12 billion pieces by 1980. The committee concluded that the expanded coinage requirements could be provided only by a new mint, which would be required by 1980, and recommended that planning should begin promptly because of the long lead time involved. Denver was suggested as the logical site for a new mint.

In a letter to the Secretary of the Treasury from the Director of the Bureau of the Budget, dated January 8, 1970, it was proposed that a case study of the new Philadelphia Mint be undertaken to facilitate more effective planning, construction, equipping, and operation of the proposed new mint for the 1980's. Reasons for the study and areas for examination were outlined for the purpose of capitalizing fully on the Mint's experience in building the new Philadelphia Mint, and avoiding to the fullest extent possible the delays, equipment failures, and other undesirable problems that were encountered in building that facility. Specific questions were included in the study outline.

Before dealing directly with the specific areas of examination designated for review, a brief background of events leading to authorization and construction of the new Philadelphia Mint is presented.

Background Information

During the period from 1935 through the late 1940's the Mint attempted to obtain: (a) a new mint in Indiana; (b) a minor coinage plant in Philadelphia; and (c) a new mint in Philadelphia. During the 1940's funds were made available for a site for a new Philadelphia Mint, and with pressure from various Philadelphia Congressional interests, at least 15 sites were given consideration by Public Buildings Service. Political pressures continued for more than a year without reaching a compromise on a site; the funds became unavailable, and the project was dropped.

During the mid-1940's and the 1950's, the Denver Mint and the Philadelphia Mint were enlarged and partially revamped, and larger production equipment provided, bringing the capacity of those two plants to the neighborhood of 1 billion coins per shift year, with a potential capacity

of 4 billion per year on a round-the-clock basis, 7 days per week. A decision was made that this capacity potential was more than adequate to meet the foreseeable needs of the country, and as an economy measure, the San Francisco Mint was closed. Legislation was later enacted changing the name of the San Francisco Mint to the San Francisco Assay Office.

Coinage requirements did not remain at the predicted rate of 1.0 to 1.2 billion coins per year, but continued to increase, and during the early 1960's, the Federal Reserve Banks were consuming coins at the rate of 3.5 billion pieces per year. The continuing increase in the demand for coins subsequently led to a crash coinage program, and reactivation of the San Francisco Assay Office on a temporary basis.

The Bureau of the Budget employed Arthur D. Little, Inc., to make a comprehensive analysis of coinage requirements over a period of years, and to determine if existing minting facilities were adequate to provide those requirements. Their final report was submitted to the Director of the Bureau of the Budget, on February 11, 1963. Their conclusions and recommendations included: (a) coinage requirements of 18 billion coins by 1990; (b) Mint facilities were completely inadequate; and (c) prompt action should be taken to construct a new mint.

A policy decision was made that a new mint should be constructed in Philadelphia to replace the outmoded mint in that city. Confidential arrangements were made with Urban Renewal Administration authorities for a site of land for the new mint, thereby avoiding the political pressure over a site which had previously occurred. The Mint requested a 7.5 acre tract as an absolute minimum, but the largest tract which could be made available through Urban Renewal included only 5.3 acres. Acceptance of this tract, in the center of the city, was considered the best strategy in view of previous experience with site selection.

The Treasury requested approval from Congress for a new mint early in 1963, and funds were made available in the latter part of 1964. A dedication ceremony for the mint was held on August 14, 1969, with major equipment installations still going on, but expected to be completed by mid-1970. Further equipment changes, occasioned by the substitution of 4-strike stamping presses for coin rollers, are expected to be completed by mid-1971.

In summary, the project which started early in 1962 should be completed by mid-1971, at a cost of about \$41 millions. This timing emphasizes the need for prompt action if a new Denver Mint is to be in operation by 1980.

LIMITED OFFICIAL USE

- 3 -

Specific Areas of Examination

Questions presented by BoB in a study outline, with answers based on the best information available, are presented below:

A - SITE

Q-1. What are the good and bad features of the site of the new Philadelphia Mint?

A. GOOD: Adequate commercial electrical power, gas, steam, water and sewerage readily available. Commercial transportation including nearby subway available to employees. Good highway systems available for receiving raw materials and shipping finished products. Numerous contractors available for competitive bidding. Nearby city fire and police protection. Meets all essential minimum criteria (See Question No. 3, below), for a plant capable of production of 2 billion coins per shift year.

A. BAD: The size of the site is its most undesirable feature. Since the existing building occupies the site completely, provisions for expansion are non-existent. Location in historical area resulted in a monumental structure which increased the overall cost significantly (special architectural features, granite facing, tourist accommodations). ^(+ \$2.5 million) Very limited parking area for management employees only. Problem of noise levels in center of city from second and third shift operations.

Q-2. What pressures forced the Mint to select the new Mint's site? Could they have been avoided? How?

A. As previously explained, site selected on confidential basis in advance of announcement of new mint, avoiding political pressures previously encountered. Although this resulted in a 5.3 acre site instead of the 7.5 acres requested, it did avoid pressure for other sites, which could have delayed project.

Q-3. What are the essential, minimum criteria which any prospective site, regardless of city, must meet?

A. Site must be adequate for required manufacturing and office space, with room for expansion and employee parking, preferably ~~15~~ to ~~25~~ acres.

25 30

LIMITED OFFICIAL USE

- 4 -

Ready access to major industrial-size electric, gas, steam and water service lines.

Accessibility and availability of commercial transportation for personnel, and receiving raw materials and shipping finished products.

Nearby security and fire protection.

Physical condition of ground must be suitable for construction and capable of supporting heavy structure and equipment.

Criteria established by Executive Order 11512, including availability of adequate low and moderate income housing.

Cost of site should be reasonable.

B - DESIGN

Q-1. What are the good and bad features of the new Philadelphia Mint's design from the manufacturing point of view? As a tourist attraction?

A. Good Features:

Design incorporates latest state-of-the-art industrial equipment for use in melting, casting, and rolling; and strip bonding of coinage metals.

Expansive open manufacturing area and in-line operations eliminate restrictions in handling of materials, and reduces need for additional large in process storage areas. Through makeup, melting, casting, and rolling the latest mechanized handling techniques are built into the system.

Maintenance shops are adjacent to manufacturing areas, as they should be, for effective support to production operations.

Manufacturing operations not over automated, i.e., not beyond state-of-the-art.

As a tourist attraction - design is ideal.

A. Bad Features:

Common manufacturing area for melting, casting and rolling operations is undesirable. (Note: charcoal and lampblack

have filtered over entire plant). Melting and casting operation should be physically separated and isolated from other operations.

Inadequate work area for rebuilding melting furnaces, launders, distribution boxes and molds. Area should be provided within the casting platform work area, and not require this work to be accomplished on the production floor.

Vertical obstruction to furnaces, molds, launders, and distribution boxes, due to interference from smoke collection system ductwork and plenum, restricts removal of melting and casting equipment when required.

Water recirculating system for melting and casting inadequate.

Baling (compressing) equipment for surface milled scrap from ingots not provided. Handling of this low density scrap offers problems in batch weighing, handling, and charging into furnace and unduly extends normal melting time.

Due to the nature of the high noise level associated with blanking operations, this area should be isolated in a properly designed acoustical, noise depressant area, rather than installed in an open area common to all other coining operations.

Necessary addition of cladding mill and auxiliaries (to comply with Coinage Act of 1965), resulted in crowding the coining bay.

Inadequate area provided for visual inspection of coins.

Facility and equipment design was minimal. Spare capacity should have been provided for all support systems.

Equipment with heavy power demands (reheat furnaces) should have separate incoming power source.

Q-1. (Continued) Must mints continue to be built as monuments and tourist attractions or can we design them as manufacturing plants? What compromises did the former require in the instance of Philadelphia? At what cost?

- A. There is little evidence that the Philadelphia Mint would have been less monumental had it been constructed at another location. Historically, most of the mints of the world have been so built, as a matter of national pride. This is not necessary from a manufacturing standpoint, but is a matter for administrative decision.

United States Mints have held great appeal to the American public, as is the case with other public buildings such as the Bureau of Engraving and Printing, or the Federal Bureau of Investigation. It is anticipated that this appeal will continue to increase in the years ahead, as it has during the past ten years. Construction of a new mint without adequate visitors' facilities would certainly invoke considerable criticism from the millions of coin collectors and numismatists.

It is obvious that some compromises from the manufacturing point of view were made at the new Philadelphia Mint in favor of visitors' facilities. It could be assumed that the lobby and visitors' areas could have been made smaller, thereby adding to manufacturing space.

It is estimated that the cost of the lobby area, visitors' gallery, escalators, elevator and entrance features, cost approximately \$1 million. It should be noted that some of this cost would have been necessary, even if no provisions had been made for visitors.

Certainly it would be possible to construct a new mint designed primarily as a manufacturing plant, but still include adequate provision for visitors to review the coinage operations.

C - CONSTRUCTION AND EQUIPPING.

- Q-1. What were the factors which contributed to the time "over-run" in completion of the mint (strikes, changes in design and engineering, supervision, etc.)?

- A. During the planning for the new Philadelphia Mint, the United States was going through a severe coin shortage. There was considerable pressure to complete the Mint quickly in order to produce additional coinage. The consultant firm contended that a new mint could be completed in two years, and this was accepted by some Government policy making officials.

However, efforts to "build the mint in two years" led to unrealistic attempts to expedite by phasing, such as award of contract for foundations and construction up to the first floor level, before final selection of processes and equipment; award of installation contract before detailed design of equipment was completed. Phasing is normally undertaken to work within physical limitations, or as in the case of the mint, to accomplish early completion by starting construction before completion of design. The success of phased construction is historically poor on complex projects.

In the case of the Philadelphia Mint, phasing provided an opportunity for an over-run in time, as upon completion of Phase I, a new policy was dictated by the Administration to slow down and stretch out all Government construction projects. The Mint was permitted to proceed only with contracts for completion of the Mint deliberately "stretched-out" to delay its completion.

Other factors contributing to the over-run included numerous strikes, shortages of electricians, and bad weather. Undoubtedly, many errors and delays could have been avoided or minimized if it had been possible to appoint the Technical Consultant to the Director, or someone on his direct staff, as Project Manager, and if the technical knowledge and skills of qualified Mint personnel had been used to better advantage in making critical decisions on building and equipment.

Q-1. (Continued) What steps can be taken to expedite construction? (Project Manager)

A. The first prerequisite to a satisfactory design is the establishment of criteria. The criteria for design should be developed from the selected manufacturing processes, and the needs of the various departments to be represented in the new facility. Criteria should initially be outlined independently of the Architect-Engineer. The final development should be jointly with the Architect-Engineer, and the final written criteria establishes a meeting of minds between Architect-Engineer and the Government.

The Architect-Engineer design fee should be negotiated after criteria has been established. Design is then to be reviewed at set percentage points during its progress. Review is primarily to determine whether the criteria is being satisfied, and whether the design will result in an economically constructible and operational facility.

At the very start of criteria development, a project staff under the supervision of the Technical Consultant to the Director of the Mint should be established. The Project Manager should be responsible for criteria development, design supervision, and construction management. This will assure project continuity.

This manager must be the single source of contact to the Architect-Engineer. He must be empowered to make final decisions concerning design and construction after review of management, organizational and operational needs. These needs should be clearly established within the criteria document. Too often throughout the Philadelphia project, too many people were involved in the making of decisions. Had all decisions been made by one authority, there would have been less mistakes than were experienced with the multiple authority system.

Facility design should include adequate utility systems for all equipment to be installed. Preferably, no utility system design should be postponed until after basic construction is completed. Example; provision for utilities for existing Mint equipment, and for coin roller and security and material handling systems were postponed on the new Mint project, resulting in many change orders.

Q-2. How can the Mint strive for modern up-to-date production facility with the latest equipment the state-of-the-art will permit and yet not over-commit itself should the equipment not materialize?

A. Spectacular advances have been made in the adoption of more sophisticated equipment by the brass mill industry during recent years. Any new mint should take full advantage of such advances and should be designed around the proven state-of-the-art at the time of design. The Philadelphia facility includes the latest most modern equipment in this respect, including direct chill casting equipment, latest rolling equipment, strip welding, and Bell annealing equipment. Strip bonding equipment was added after the new clad coins were required by the Coinage Act of 1965.

The state-of-the-art was exceeded with the coin roller. The Mint was designed around twelve 4-strike coining presses and two coin rollers utilizing all available space. If sufficient unassigned space had been available, with ample additional funds, a greater number of 4-strike presses could have been purchased and installed in the event that the coin roller did not work.

A complete reply to this question is difficult because of the various types of equipment considered for a new mint and the need to have the most modern equipment available. As an example, additional coining presses can be more easily installed in space formerly assigned for some other purpose, but an installation such as the cladding line required very extensive foundation work and expansive basement rooms for utilities and other services. Introduction of the cladding line late in the project required very extensive and expensive building changes.

Q-3. What problems did the Mint experience in the shift of equipment from the old Mint to the new? Could they have been avoided or lessened?

A. The old Mint in Philadelphia has an antiquated electrical power system and many tools could not be used in the new Mint until power conversions had been accomplished. Since we had not anticipated using many of the stamping presses, this caused a delay in changing the presses over to the new requirement in the new Mint.

Generally speaking, we experienced no unusual problems in moving equipment from the old Mint to the new one.

D - BREAK IN.

Q-1. What problems did or is the Mint experiencing during "break in?"

A. In connection with the design and successful operation of a new brass mill, or any other new metallurgical facility, substantial risks are necessarily involved. It is common experience in the brass mill industry, and in other industries, to experience "bugs" in new types of equipment, and many months are sometimes required to de-bug new equipment. The Mint is no exception and we did encounter many problems. For example, four new melting furnaces, each with its own transformer, were installed in the new Mint; one by one, each transformer blew out - one had a rather extensive fire. The last of these equipment failures is now being replaced by the manufacturer, under the equipment guaranty, and production is increasing on a satisfactory basis. Many such problems have been encountered, and successfully resolved, and the new Philadelphia Mint has the capability as demonstrated to date to meet expected production requirements.

Q-1. (Continued) Can the break in period be shortened? Can break in costs be reduced?

A. In many cases, equipment problems experienced were due to some lack of cooperation on the part of vendor. Problems experienced were also generally associated with manufacturing revisions that had not been documented and forwarded for construction revisions. Numerous equipment failures and operational inefficiencies were

common. Better source inspection of equipment should be performed, and new equipment should not be shipped to the project until its basic functions have been proven to be satisfactory to the extent feasible.

Many items in the new Mint are standard equipment, thoroughly developed in industry throughout years of use, however, the equipment did not function as intended. Examples include virgin metal shear, slab cropping saw, welder-trimmer, slitter-trimmer, rolling mill conveyors, etc. All of this equipment should have received better source inspection, and more adequate proof of operational acceptability before shipment.

Break in costs in the new Mint were substantially reduced through arrangements made with private industrial plants to permit Mint employees to visit their plants and not only witness the operation of equipment similar to that installed in the new Mint, but also actually to operate it. Some of our employees had never seen the types of equipment installed in the new Mint. However, after visiting two or three private industrial plants, and actual operating equipment in these facilities, the break in period in the Mint was substantially reduced. Also, expert melters and rollers from private industry came to the Mint and helped "de-bug" our new equipment.

OTHER AREAS FOR CONSIDERATION.

1. Suggestion related to Question D - Break In:

Do not have new equipment built and delivered to the new Mint before space is available for it.

As part of the plan that the new Philadelphia Mint could be completed in two years, new equipment was ordered for delivery within that period. However, the Mint was not completed on time, and new equipment arrived and had to be stored for many months in a warehouse. In some instances, costly deterioration occurred. This added to the problems of installation, break in, and start up.

2. Documentation:

A review of the Philadelphia situation indicates that a much better job should be performed in providing complete documentation for construction of a new mint. Documentation should be improved in the following areas:

- 11 -

1. Communication within the agency concerning criteria, design, and construction.
2. All communications between the Government, Architect-Engineer and contractors.
3. Reasons for and effects of change orders at the time of issuance.
4. Preparation of as-built drawings and specifications.
5. Reports of equipment failures, and requested improvements.

It should be established that this documentation is necessary because the project is of such complexity and duration, that the history of events cannot be carried in the minds of the few people involved at any given time.

3. Escalating Construction Costs.

A substantial increase in construction costs has occurred since the inception of the new Philadelphia Mint. Increases in hourly wages for construction workers are shown in the following tabulation:

	<u>Increase in Hourly Wages</u>		
	August 1965	January 1970	Effective 1971
Carpenters	\$4.80	\$6.08	\$8.34
Sheet Metal Workers	5.41	6.87	9.71
Plumbers	5.44	7.39	9.08
Electricians	5.55	7.30	9.08
Average	\$5.30	\$6.91	\$9.05
		+30.39%	+30.98%

It will be noted that during the five-year period from 1965 through 1970 there was an average increase of about 30% in hourly wages over that entire period. However, as a startling contrast, wages for 1971 represent another 31% increase for the period of a single year.

LIMITED OFFICIAL USE

- 12 -

Since wages are estimated to represent at least 50% of construction costs, and increasing steadily to a larger percentage, this should be recognized as a very important factor in estimating costs for a new Denver Mint.

CONCLUSION

There are many lessons to be learned from a comprehensive review of the overall project of planning and constructing the new Philadelphia Mint. Looking back, at this time, it is possible to identify many things which could have been handled in a more efficient manner. If, somehow, we were to start over again on this same project, many things could be done differently, countless changes could be avoided, and many thousands of dollars saved.

An attempt has been made in this study to avoid details of construction decisions that apply strictly to the Philadelphia Mint. Instead, emphasis has been given to problems of a more general nature that could be used to advantage in planning and constructing the new Denver Mint.

Major areas for consideration include the following:

1. Purchase adequate site, allowing for future expansion.
2. Select equipment based on proven state-of-the-art.
3. Design building after basic equipment processes determined.
4. Issue single contract for construction of building.
5. Avoid phased construction.
6. Reduce or eliminate numerous planning changes.
7. Give Project Manager full authority for final decisions.
8. Substantially reduce the number and cost of change orders.

In conclusion, it should be emphasized that the new Philadelphia Mint project is expected to be successful from an operational viewpoint. When the new equipment items have been installed in replacement of the coin rollers, the new Mint should be fully capable of producing coin at the planned objective, i.e., 4 billion coins on a two-shift basis.

RECOMMENDATION

The benefits of the case study of the new Philadelphia Mint can perhaps best be utilized in a positive plan for construction of a new Denver Mint. This is outlined below:

PLANS FOR CONSTRUCTION OF NEW DENVER MINT

1. Purchase land - about 20 to 30 acre site.
2. Employ Management Consultant Firm to study plant and equipment requirements. (Criteria)
3. Mint and GSA select Architect-Engineer firm.
4. Prepare preliminary building plans, based on selected processes.
5. Mint and A-E prepare detailed equipment specifications for purchase of equipment.
6. A-E and GSA and Mint prepare detailed drawings for entire building, covering all requirements.
7. GSA invite construction bids, and award contract.
8. Mint purchase equipment, with specified delivery dates coordinated with building completion, as specified in construction Critical Path Method.
9. Mint appoint Mint Project Manager, with full authority for final decisions.
10. Project Manager coordinate overall project with Project Staff Managers of A-E, GSA, and building contractor.
11. Mint and GSA and A-E supervise building construction.
12. Mint and A-E coordinate building construction with equipment delivery, and supervise equipment installations.
13. Limited or no changes permitted after equipment and building specifications finalized.
14. This plan should greatly curtail or eliminate change orders, greatly reducing cost and speeding project completion.

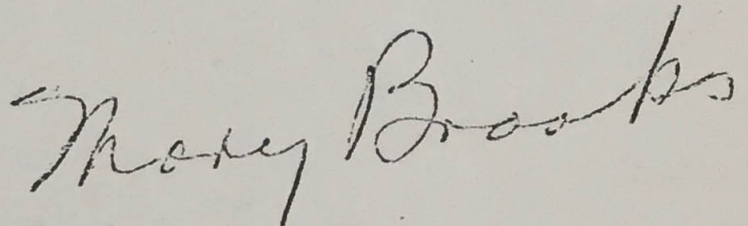
Public Law 88-102, approved August 20, 1963, authorized the Secretary of the Treasury to construct buildings required in connection with operation of the Bureau of the Mint. The Act authorized appropriations of \$30,000,000, which was increased to \$45,000,000 by the Coinage Act of 1965. Approximately \$4,500,000 of the Authorization is available for

LIMITED OFFICIAL USE

- 14 -

appropriation, and could be used for expenses through Item 6 of the above plan. This amount should be sufficient to get the project underway in an orderly manner.

Additional authorization and appropriation of funds would be required later for construction of the building, purchase and installation of equipment, and related expenses.

A handwritten signature in cursive script, reading "Mary Brooks". The signature is written in dark ink and is positioned above the printed name and title.

Mary Brooks
Director of the Mint

March 18, 1970

November 4, 1971

The Honorable
Nicholas G. Theodore
Superintendent
United States Mint
Independence Mall
Philadelphia, Pennsylvania 19106

Dear Mr. Theodore:

We plan to implement Criteria Development on the new Denver Mint in the near future. As a prerequisite to this action, we have developed the organization plan and other data pertinent to the project. This material, contained in the attached November 4 memorandum to the Deputy Director, is forwarded for your information.

In pursuit of this action, I intend for us to derive all possible benefit from experience we have gained in the design and somewhat brief utilization of the Philadelphia Mint. Both good and undesirable design features are to be considered and evaluated. I have instructed the Project Manager on the New Mint to arrange a meeting, or series of meetings, at your facility involving appropriate Denver and Philadelphia Mint personnel to discuss and evaluate salient features. You will be contacted on this matter in the near future, but in the meantime, it will be helpful if your division managers started compiling a list of items for review and discussion at the subsequent meeting (s).

Sincerely,

Mary Brooks
Director of the Mint

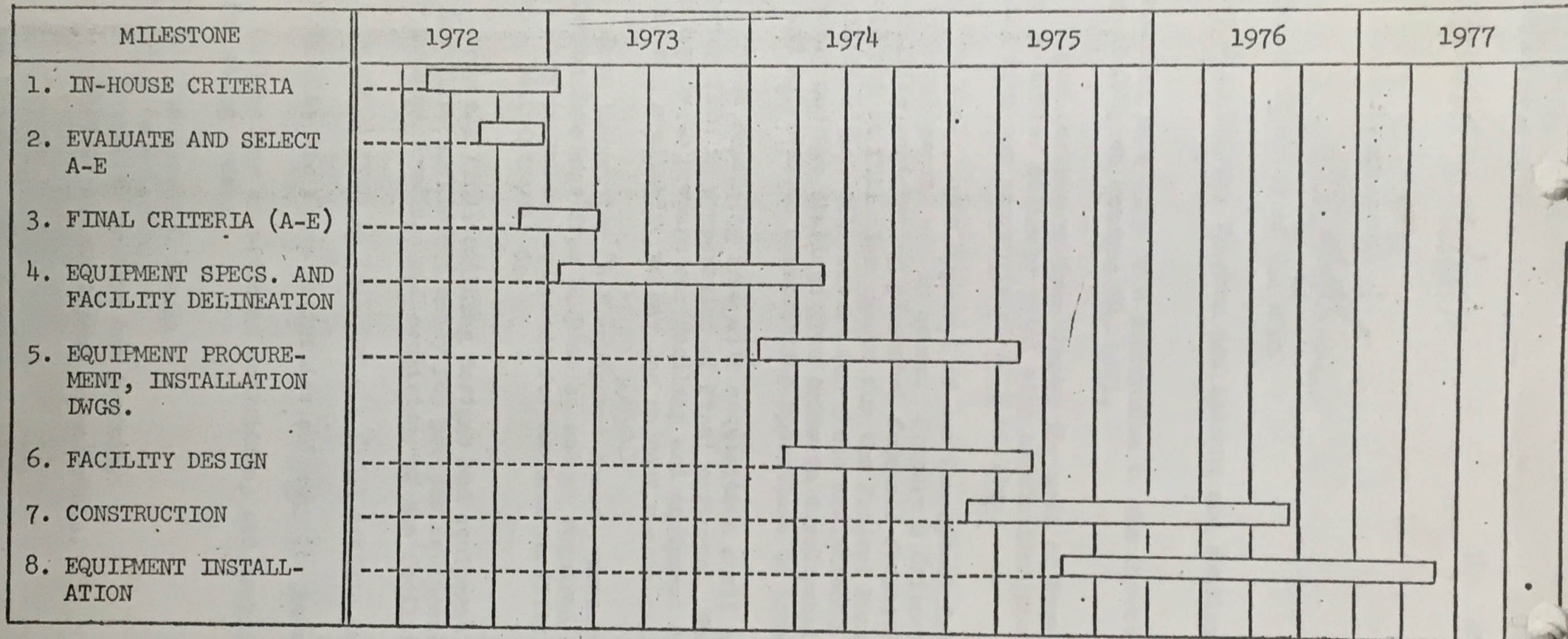
Attachments 1

cc: Supt., Denver Mint ✓

GGA:sol AJG

PLANNING SCHEDULE - NEW DENVER MINT

FISCAL YEAR



UNITED STATES GOVERNMENT

Memorandum

THE DEPARTMENT OF THE TREASURY
BUREAU OF THE MINT

TO : Dr. Alan J. Goldman
Technical Consultant

DATE: November 1, 1971

FROM : F. H. MacDonald *FHM*
Deputy Director of the Mint

SUBJECT: New Mint Denver; Program Realignment and Funding

Attached is a copy of a memorandum to the Director which reports on my meeting at OMB, on October 29, 1971.

1. Upon our return from Denver the week of November 8, 1971, we hope to be able to better estimate total site acquisition costs and anticipate any funds remaining from our appropriated \$1.5 million.

2. We shall, upon approval of our Conceptual Criteria, proceed with Criteria development -- in house. Prepare a Criteria Development Organization Plan. Utilize engineering personnel from all facilities if you desire. Initially it should not be full time except for the Project Manager. Consider the impact on our facilities that will result for these assignments. When do we establish a full time group who shall go from criteria development to design liaison and review and approval to construction operations to transition and activation?

3. Funds remaining from site acquisition shall be utilized to engage an Engineering firm in preparation of final criteria. This may well not be the firm we employ to prepare our facility and equipment designs. If site acquisition funds are not available, we may use on hand construction funds.

4. Drop budget for "A-E equipment specs., procurement, Bid, review and installation drawings" from \$1.9 ^{million} to an amount required to prepare specifications and to survey potential equipment for maximum facility requirements. Perhaps \$300,000 - \$400,000 will do.

5. Drop all final building designs and equipment procurement activities from 1973. But allow sufficient money for process equipment arrangements, detailed facility concept drawings and renditions of the facility on the selected site.

6. We shall fund in 1974 for all final designs and procurements.

7. Display the above activities suitably for submission to Treasury and OMB.

8. Outline our significant activities, and decisions. I suggest something on the following order:

1. Conceptual Criteria.
2. Site Selection
3. Establish product and quantity.
4. Make or buy decisions on materials.



5. Process delineation -- melt, cast, roll --
6. Process flow -- sequence
7. Support facilities -- process
8. Ancillary facilities -- administration
9. Equipment definition -- induction or gas furnaces
10. Facility details.

The above are listed for consideration and this was done rather hastily. Expand upon these and add to and rearrange as you see fit to show the Technical thought processes necessary to development of a total concept. Do consider a CFM approach for illustration, and pull Hal McCoy in for assistance. Have a first cut to me by Thursday morning.

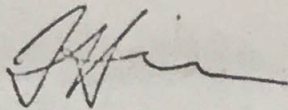
UNITED STATES GOVERNMENT

Memorandum

THE DEPARTMENT OF THE TREASURY

TO : Mrs. Brooks

DATE: November 1, 1971

FROM : F. H. MacDonald 

SUBJECT: New U.S. Mint, Denver; Program Realignment and Funding.

On Friday, October 29, 1971, I met with Messrs. Mark Alger, OMB, Bill Dickey and N. Sims to discuss our requested \$3.45 million for the Denver Mint during fiscal 1973.

Mr. Alger was primarily concerned that we were trying to condense too much of our design effort into fiscal '73 while Philadelphia was still unproven. They are also looking for every possible monetary cut that can be made now.

Dr. Goldman's office had prepared for this meeting a bar chart of our intended activities from now through fiscal '73. From my analysis of this chart and the other factors, I have concluded and so stated to Mr. Alger that about \$1.5 million could logically be rescheduled for fiscal '74.

OMB has also requested an outline of our planned activities and the sequential decisions that must be made through the end of design. I have issued instructions to Dr. Goldman to pursue the requested actions so that we may present the plan to OMB during the week of November 1, 1971.



UNITED STATES GOVERNMENT

Memorandum

THE DEPARTMENT OF THE TREASURY

TO : Mr. Rossides

DATE: October 28, 1971

FROM : Mr. Dickey

SUBJECT: New U.S. Mint Denver

The attached memorandum from the Acting Director of the Mint requests concurrence in designing the new Denver Mint to best accommodate the manufacture of coins therefore placing monumental considerations secondary.

I do concur in their conceptual criteria and recommend it for your approval.

Approved _____

Disapproved _____

UNITED STATES GOVERNMENT

Memorandum

THE DEPARTMENT OF THE TREASURY

TO : Mr. Eugene T. Rossides
Assistant Secretary for Enforcement and Operations

DATE: October 28, 1971

FROM : F. H. MacDonald *FHM*
Acting Director of the Mint

SUBJECT: Conceptual Criteria, New U.S. Mint, Denver.

Funds have been appropriated in this year's budget for site acquisition for a new U.S. Mint in Denver, Colorado. Pursuant to the initiation of this procurement we would appreciate concurrence or comment on our conceptual criteria for the new facility.

We have performed staff reviews and petitioned comments from other knowledgeable individuals for the preparation of a Case Study of the New Mint in Philadelphia. From this comprehensive study we have drawn a hypothesis from which our conceptual criteria has been developed: The primary goal of a manufacturing facility is to produce a competitive product of acceptable quality. The criteria for design must reflect this objective and allow traditional considerations to remain secondary.

Our conceptual criteria is, therefore, as follows:

- _____ 1. The site area shall be of sufficient size to provide an uninterrupted process flow and shall allow for at least fifty percent horizontal expansion.
- _____ 2. The site location may be reasonably accessible to visitors without being in the main urban area.
- _____ 3. The structure's lines and facade shall compliment this industrial facility rather than dictate the configuration of the facility.
- _____ 4. Visitor accommodations shall be provided to the limit that they do not reduce the efficiency of the facility.

With the cooperation of the General Services Administration we have prepared a detailed listing of factors for use in site evaluation and selection. A copy is attached.

Your indication of approval or comments on the criteria items will be appreciated.

Attachment

Approved: _____

Factors for use in Site Evaluation
and Selection -- New Denver Mint

August 25, 1971

Size and Delineation of Area

- (a) Size - 25 to 30 acres, with reasonable geometrical area.
- (b) Area - must be in the City of Denver.
- (c) Preferably located in an area for which a master plan for development exists. Prefer to not locate on a site for which plans for development of contiguous properties are unknown.

Housing

- (a) Must -- as far as practical -- be within reasonable access for existing or planned low income housing per Executive Order 11512.

Transportation

- (a) Close to good highway system.
- (b) Rail access desirable.
- (c) Availability to public transportation for employees and visitors.
- (d) Street system adjacent to site desirable.

Social

- (a) Effect upon maximum city, community, and citizen group support, and redevelopment authority officials.
- (b) Effect upon delivery of Federal public project to the city and community.

Economic

- (a) Estimated cost for potential sites within delineated area, including the following cost factors:

- Land (including existing improvements)
 - Cost of relocating current occupants of the site (residential or business)
 - Cost of providing ingress/egress to the site
 - Cost of removal or rerouting utility lines, as required
 - Cost of removal (including demolition) of existing buildings and structures.
 - Cost of providing required utilities to the property line
 - GSA charges (such as investigatory costs, legal fees, surveys, etc.)
- (b) Availability of sites on existing Government owned areas to be considered. For sites considered on city owned or city administered property, an exchange agreement involving the transfer of the existing Denver Mint property should be considered.
- (c) Feasibility of an area within an urban renewal project.
- (d) Effect upon economic and physical development of surrounding community.

Availability

- (a) Current occupancy.
- (b) Time required to vacate occupants, if any.
- (c) Time required to remove structures, buildings, if any.
- (d) Existence of overhead or underground utility lines and time required for removal or relocation.
- (e) Condemnation required for any of proposed sites.

Environmental

- (a) Conformity to land use and zoning plans.
- (b) Effect upon special environmental considerations such as water, air, and noise pollution.
- (c) Effect upon aesthetic or historical qualities of the neighborhood.

Functional

(a) Utilities availability

- Commercial electric power
- Industrial natural gas
- Water
- Sewer system (sanitary and storm)
- Commercial steam
- Telephone service

(b) Area not subject to flooding from streams and not subject to heavy runoff of rainfall.

(c) Evaluation of earthquake history of the Denver area and relation of faults to proposed sites.

(d) Soil must be suitable for construction of heavy building and equipment foundations and support thereof. Type of subsurface must be considered as a factor of cost.

(e) Limitations of zoning laws with regard to type, size, height of buildings, property line adjacency requirements, type of industry approved for the area, ecological restrictions, if any, must be known.

(f) Utility or other easements related to the site.

(g) Convenience to visitors and the public.

(h) Location in area where reasonable safety for employees and Federal Government property could be obtained.

Memorandum

Geo Ambrose
Department of the Treasury
Washington, D.C.

TO : (1) Mr. William L. Dickey
→ (2) Mrs. Mary T. Brooks

DATE: October 27, 1971

FROM : Robert R. Fredlund

SUBJECT: Meeting in Denver

The meeting in Denver with Mayor McNichols has been set for 1:30 P. M. Thursday, November 11. The meeting with Governor Love is set for 3:00 P. M. the same day. GSA Regional Administrator Waggoner purposely arranged the meeting with the Mayor first because he indicated the Mayor would be more prepared to discuss specific items with us than would Governor Love, and some of these items which we discuss with the Mayor we probably would want to know about before we meet with the Governor.

Mr. Waggoner has asked that, if possible, we come to Denver Wednesday evening so as to be able to meet with him first in his office Thursday morning at 9:30 A. M. in the Denver Federal Center. At this meeting with Regional Administrator Waggoner, he would bring us up to date on his activities, and we could prepare for the afternoon meeting. If this is agreeable with you, please give me a call and if you would like, we would work out details on hotel reservations and transportation for you.

In the meantime, I would plan to take this opportunity to discuss other Treasury administrative program matters with GSA and with our Treasury activities in Denver, so I would plan to be in Denver Tuesday and Wednesday, Nov. 9 and 10. It is possible, that Mr. Ambrose or some Bureau of the Mint people might wish to go out a day or two early, also.

In any event, I will plan on meeting you in Denver on the morning of Nov. 11 and going with you to Mr. Waggoner's office in the Denver Federal Center.

Bob Fredlund

Director of Administrative Programs





OFFICE OF
DIRECTOR OF THE MINT

THE DEPARTMENT OF THE TREASURY

WASHINGTON, D.C. 20220

RECEIVED

SEP 22 1971

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

September 20, 1971

The Honorable
Betty Higby
Superintendent
United States Mint
Denver, Colorado 80204

Dear Mrs. Higby:

In order to bring you up-to-date on recent developments on the new Denver Mint, we are forwarding a copy of the following documents:

1. Notes on meeting held with Mr. Robert R. Fredlund, dated August 24, 1971.
2. Letter to Honorable R. L. Kunzig, dated August 31, 1971.
3. Memorandum to the Secretary (not yet approved), dated September 13, 1971.

Also, we originally included \$13.45 million in our Fiscal 1973 Financial Plan for the New Denver Mint Project. On September 1, 1971 we reduced our request to \$3.45 million, as explained on the attached data sheet.

Sincerely,

Sidney F. Carwile

Sidney F. Carwile
Acting Director of the Mint

Enclosures (4)



Keep Freedom in Your Future With U.S. Savings Bonds

UNITED STATES GOVERNMENT

The Department of the Treasury
Washington, D.C.

Memorandum

RECEIVED

TO : Memorandum for the Record

DATE: August 24, 1971

SEP 22 1971

FROM : Robert R. Fredlund

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

SUBJECT: New Denver Mint

Sid Carwile, Acting Deputy Director of the Bureau of the Mint, Dr. Alan Goldman, Technical Consultant to the Director and Mr. George Ambrose, Chief, Industrial Facilities and Mr. McDonald, a consultant to the Bureau of the Mint met yesterday afternoon, August 23, with Mr. John C. Dye and James Johnson of the Public Buildings Service and myself, to discuss the planning and procedures for acquiring the site for the Denver Mint in accordance with the appropriation authorized by Public Law 92-49, 92nd Congress.

Mr. Dye reviewed for us a number of the considerations involved in proceeding with the site acquisition including the necessity for appropriate contacts with the Colorado Congressional Delegation, Governor John Love and the Mayor of Denver. Mr. Dye also indicated the need for careful consultation with other Federal agencies as well as with local governmental officials regarding housing, planning, zoning, redevelopment, job programs and related matters. Mr. Dye specifically called our attention to provisions of OMB Circular A-95 and also the Intergovernmental Cooperation Act which requires this kind of coordination.

Mr. Dye also specifically pointed out the need to consider the requirements of Executive Order 11512 in the selection of the site, specifically with respect to the availability of adequate low and moderate income housing and consistency with state, regional and local plans and programs; specifically paragraphs 6 and 7 of Section 2 of Executive Order 11512 (copy attached).

In the ensuing discussion, it was developed that GSA would, through their Regional Administrator Waggoner, have the responsibility for proceeding with the site acquisition action but would work in close cooperation with Mint officials from Washington and myself. It was understood, however, that it is quite likely that Mrs. Mary Brooks, the Director of the Mint, would prefer to be personally involved in any contacts with the Congressional Delegation, the governor and the mayor. Mr. Dye is going to ask his supervisor, Mr. Ray Nixon, to explore the procedure on this with GSA's Congressional Liaison Staff, and he will advise us next week when Mr. Nixon returns.



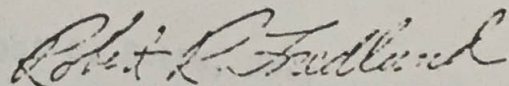
Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

In the meantime, we are to prepare for Mr. Betts' signature a further letter to Administrator Kunzig in which we enclose our criteria for the site selection. Mr. Carwile and his staff will prepare this letter, the supporting criteria, along the lines of that previously developed and incorporate in it the August 5, 1971, site criteria statement. However, additional information will be included particularly with respect to the need to consider relocation assistance costs and other factors in line with the attached statement left with us by Mr. Dye. *

It is understood that after we forward our site selection criteria to GSA that GSA, in turn, after working with us on the appropriate congressional contacts, will authorize Regional Administrator Waggoner to proceed to initiate the contacts with the governor and the mayor, and then with the site delineation investigation. In this connection, it would appear that representatives from this office may need to accompany Bureau of the Mint and GSA officials to Denver for the purpose of additional planning with GSA's Regional Administrator Waggoner and his staff.

One of the main questions that is going to have to be resolved in the very near future is the kind of Mint building which will be constructed. This determination will have a significant effect on the site selection. Specifically, if it is determined that the new Denver Mint will be an efficient, modern manufacturing plant with a continuous process work flow, this will require a building spreading over a number of acres and will probably require a site as large as 25 acres.)

On the other hand, if the new Mint is to also serve as a tourist attraction and must be located in downtown Denver, then it will have to be more of the monumental type of building and constructed up higher so as to utilize the lesser amount of space that would be available in a suitable downtown area. I will ask Mr. Carwile to prepare a suitable memorandum for the Director of the Mint to send to Assistant Secretary Rossides and the Secretary, presenting the "pros and cons" for each type of structure, with recommendations as to the decision to be made.



Robert R. Fredlund
Director of Administrative Programs

Attachments

cc: Mr. Carwile ✓
Mr. Dickey ✓
Mr. Betts ✓
Mr. Brooks ✓
Mr. Greenlee ✓
Mr. Dye ✓

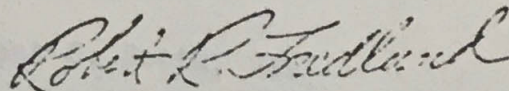
* We will also provide Mr. Dye with a copy of the Environmental Impact Statement which was filed last year with the Council on Environmental Quality.

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Robert R. Fredlund
Director of Administrative Programs

Attachments

cc: Mr. Carwile ✓
Mr. Dickey ✓
Mr. Betts ✓
Mr. Brooks ✓
Mr. Greenlee ✓
Mr. Dye ✓

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ASSISTANT SECRETARY

THE DEPARTMENT OF THE TREASURY

RECEIVED WASHINGTON, D.C. 20220

SEP 22 1971

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

AUG 31 1971

Honorable Robert L. Kunzig
Administrator
General Services Administration
Washington, D. C. 20405

Dear Mr. Kunzig:

On August 23 Treasury Department and General Services Administration personnel met in the Office of the Director, Administrative Programs, to establish the initial steps to take in acquiring a site for the new Denver Mint. It was concluded at this meeting that we would provide a summary list of site evaluation factors to be considered in your site investigation process as well as a copy of our most recent environmental statement, dated May 22, 1970, on the new mint. The referenced information is enclosed.

It was established that the Office of Assistant Commissioner for Operational Planning, Public Buildings Service, will develop a tentative plan for our joint contact with Congressional and other concerned public officials in Colorado concerning this project, pursuant to Budget Circular A-95. This item is scheduled to be available to us for review and concurrence the week of August 30.

Sincerely yours,

Ernest C. Betts, Jr.,

Ernest C. Betts, Jr.
Assistant Secretary for Administration

Enclosures

74
MINT:GGA:mb 8/25/71

42
AJG

SFC

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OS-AS: RRF

Factors for use in Site Evaluation
and Selection -- New Denver Mint

August 25, 1971

Size and Delineation of Area

- (a) Size - 25 to 30 acres, with reasonable geometrical area.
- (b) Area - must be in the City of Denver.
- (c) Preferably located in an area for which a master plan for development exists. Prefer to not locate on a site for which plans for development of contiguous properties are unknown.

Housing

- (a) Must -- as far as practical -- be within reasonable access for existing or planned low income housing per Executive Order 512.

Transportation

- (a) Close to good highway system.
- (b) Rail access desirable.
- (c) Availability to public transportation for employees and visitors.
- (d) Street system adjacent to site desirable.

Social

- (a) Effect upon maximum city, community, and citizen group support, and redevelopment authority officials.
- (b) Effect upon delivery of Federal public project to the city and community.

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- (a) Estimated cost for potential sites within delineated area, including the following cost factors:

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 - GSA charges (such as investigatory costs, legal fees, surveys, etc.)
- (b) Availability of sites on existing Government owned areas to be considered. For sites considered on city owned or city administered property, an exchange agreement involving the transfer of the existing Denver Mint property should be considered.
- (c) Feasibility of an area within an urban renewal project.
- (d) Effect upon economic and physical development of surrounding community.

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- (a) Current occupancy.
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- (e) Condemnation required for any of proposed sites.

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- (a) Conformity to land use and zoning plans.
- (b) Effect upon special environmental considerations such as water, air, and noise pollution.
- (c) Effect upon aesthetic or historical qualities of the neighborhood.

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(a) Utilities availability

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- Industrial natural gas
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- Sewer system (sanitary and storm)
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- Telephone service

(b) Area not subject to flooding from streams and not subject to heavy runoff of rainfall.

(c) Evaluation of earthquake history of the Denver area and relation of faults to proposed sites.

(d) Soil must be suitable for construction of heavy building and equipment foundations and support thereof. Type of subsurface must be considered as a factor of cost.

(e) Limitations of zoning laws with regard to type, size, height of buildings, property line adjacency requirements, type of industry approved for the area, ecological restrictions, if any, must be known.

(f) Utility or other easements related to the site.

(g) Convenience to visitors and the public.

(h) Location in area where reasonable safety for employees and Federal Government property could be obtained.

Mr. Paul McDonald
Director, Office of Administrative Services

May 22, 1970

Mrs. Mary Brooks
Director of the Mint

Environmental Statement
Future New U. S. Mint - Denver, Colorado

A. Probable Impact New Mint May Have on Environment

Any facility conducting such operations as will be conducted in the new Mint will generate materials, the external dispersion of which may adversely affect the atmosphere and hydrological environment. It is intended to adequately control potential contaminants so as to preclude any adverse effect.

Long range plans provide for the acquisition and ultimate use of some 30 acres of land area, affording room for expansion as well as the inclusion of auxiliary equipment required to treat plant effluents for rigid control of potential contaminants.

B. Probable Adverse Effects Which Cannot Be Avoided

No known adverse effects will result from the construction and operation of the new Mint. Operations from which pollutants may result and the method of controlling same are outlined as follows:

(1) Water Pollution

Waste water, with several degrees and types of contamination, may be generated in the new facility.

Acid waste from Assay Laboratory operations will be generated, but will be passed over a bed of neutralizing media, such as limestone, before discharging into the sewer system.

Process cooling water necessary for the operation of air compressors, furnaces, casting equipment, roll mills, etc., will be filtered for removal of solids. Temperature rise in the process cooling water will necessitate the use of cooling towers and heat exchangers for temperature reduction. Recycling will enable reuse of water thus offering conservation. Small amounts will be diverted to the sewer system but should contain no contaminants and should not be of higher temperatures.

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Fumes and exhaust from laboratory hoods in the Assay Offices will be evaluated and if the concentration of contaminants is negligible, they will be exhausted direct to the atmosphere. Should it be necessary, the exhaust will be passed through a filter media for neutralization.

Air exhausted to the outside atmosphere direct from equipment will be run through filters or adsorption media to remove solid particles and excessive amounts of moisture as may be necessary.

Need for filtering air being exhausted from general work areas to the atmosphere is not foreseen.

C. Alternates to Proposed Action

The new mint facility will, of course, necessitate the expenditure of resources, i.e. water, natural gas, electrical service, and those

basic resources utilized in the construction and equipping of the plant. Offsetting this, in part, will be those resources conserved by curtailing operations in the old Denver Mint.

Utilization of a land area heretofore uncommitted to industrial application is planned. In exchange for this utilization, ultimately the present Mint site may be programmed for use in expanding county/city government office areas.

No alternates to the construction of a new Mint are offered. Projected demand for coins dictates that a new facility be provided since required production cannot be accomplished in existing Mint institutions.

D. Irreversible or Irretrievable Commitments of Resources

Construction of the new Mint in Denver is not expected to commit resources to the point of being irreversible or irretrievable. [Should, for some reason, the facility be ultimately closed and physically removed,] return of all natural resources to previous conditions could be effected.

RECEIVED

SEP 22 1971

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

September 13, 1971

MEMORANDUM TO THE SECRETARY:

From: Mary Brooks
Director of the Mint

Through: Mr. Rossides
Mr. Betts

Subject: Design of the New Denver Mint

Funds have been appropriated in the Fiscal 1972 Budget in the amount of \$1.5 million for the acquisition of a new Denver Mint site and we are anxious to proceed on this matter. Since the acceptability of any site to be considered is contingent upon the type facility to be provided thereon, we must establish our position with respect to a production-oriented plant versus a visitor-oriented facility. Mr. Robert R. Fredlund, Director of Administrative Programs, has requested we outline the "pros and cons" of each approach and forward to you along with our recommendations.

Pursuant to BoB's request, the Bureau of the Mint prepared and forwarded a "Case Study of the New Philadelphia Mint" on March 24, 1970. The purpose of this study was to identify problems encountered from planning through start-up in order to preclude, as far as possible, similar deficiencies in providing a new mint facility planned to be completed about 1980.

In this case study, it was noted that the size and location of the selected downtown site had significant effect upon the final features of the facility. The limited size of the site dictated a less than desirable arrangement of production equipment, required vertical type design, and precluded provisions for future expansion. The location in an historical area resulted in a monumental structure which increased the overall cost significantly.

From experience gained on the recently completed Philadelphia Mint, the Bureau of the Mint must take the position that the new facility must be planned to most effectively and efficiently support coin production operations, and that provisions for visitors which cannot be overlooked, must be considered secondary to operational efficiency.

	Initiator	Reviewer	Reviewer	Reviewer	Reviewer	
Surname	Brooks	Fredlund	Dickey	Rossides	Betts	Ex. Sec.
Initials	M B					

We have, in the past, indicated an area of 25 to 30 acres would be required for a site. We have not altered our thinking on this because such a land area is necessary in order that a horizontal in-line production flow of in-process materials and end product can be accomplished. We feel that this land area should be considered foremost in our site selection because of its significance in affording us the much needed advantage of fitting the building (or buildings) to the operation, and providing the future expansion capability needed for increased production.

Locating the new mint in the downtown area would provide availability of public transportation for employees. This advantage is offset by the availability of better housing and parking spaces afforded in selecting a site away from the center of the city. Although further evaluation is in order, we already have in mind one site which is removed from the downtown area and meets our criteria with regard to size. This site is west of and adjoins the North Platte River, and is to the west of downtown Denver.

It is planned to utilize latest industrial and production engineering concepts in providing ideal production equipment layout, manufacturing processes and materials handling features intended to result in the most economical manufacturing costs. Also, we will be able to minimize construction costs by selecting a site of adequate size and unrestricted location so that a single-story building concept with reasonably attractive facing can be provided.

We believe it necessary to provide adequate facilities for tourist visitation, to the extent necessary for their viewing the coin manufacture operations. We would otherwise hope to hold investment on exterior appearance to a minimum, planning to provide attractive building facing such as aluminum, enamelized steel, precast concrete, or other materials consistent with plans for development of the area in which the site is located. It is practical to provide an attractive plant with adequate visitor facilities without compromising efficiency of the manufacturing operations for which the facility was justified and intended.

It is therefore recommended that the Facility, and thus the site, be predicated on the needs for a well planned production plant. To meet this requirement an area of 25 to 30 acres, not necessarily located in the downtown Denver area, must be provided.

We are including a copy of our site selection criteria, dated August 25, for information.

Attachment

Approved _____

Secretary

Factors for use in Site Evaluation
and Selection -- New Denver Mint

August 25, 1971

Size and Delineation of Area

- (a) Size - 25 to 30 acres, with reasonable geometrical area.
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(g) Convenience to visitors and the public.

(h) Location in area where reasonable safety for employees and Federal Government property could be obtained.

RECEIVED

SEPT 1, 1971

NEW DENVER MINT

SEP 22 1971

Construction Funds for FY 1973OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

Our FY 1973 Financial Plan included \$13.45 million in Mint Construction Funds which was planned for the New Denver Mint Project. Of this amount, \$10 million was intended for initiating contracts on long-lead equipment and \$3.45 million was programmed for use in contracting for Architect-Engineer Services.

We believe it is reasonable to defer the requested \$10 million equipment funds to FY 1974 because specifications need to be prepared and solicitation for bids on long-lead items could be implemented before funds are available. This action would minimize the impact of deferment.

We do not believe the \$3.45 million requested for A & E Services can be postponed without an equivalent loss of time on the project. We plan to complete in-house preliminary work on the new mint in FY 1972 and be ready to select and negotiate with an A & E firm early in FY 1973. Any time lost in starting the A & E firm after we have completed our preliminary criteria will be irrecoverable. If funds for engineering are deferred to FY 1974, about one year will have been lost on the project.

The \$3.45 million planned for A & E services include the following areas of work which must be developed concurrently:

Final Criteria Development	\$ 250,000
Site Development Drawings and Specs.	200,000
Facility (Building) Design	1,100,000
Preparation of Equipment Specifications and Installation Drawings	<u>1,900,000</u>
Total	\$3,450,000

It is requested that funds in the amount of \$3.45 million for A & E Services be retained in the FY 1973 Budget in order that the New Denver Mint may proceed without delay.

September 1, 1971

(Mrs. Brooks handed to Norman E. Sims Jr., Director Office of
Budget & Finance, at Treasury budget meeting)
9/1/71

September 20, 1971

The Honorable
Betty Higby
Superintendent
United States Mint
Denver, Colorado 80204

Dear Mrs. Higby:

In order to bring you up-to-date on recent developments on the new Denver Mint, we are forwarding a copy of the following documents:

1. Notes on meeting held with Mr. Robert R. Fredlund, dated August 24, 1971.
2. Letter to Honorable R. L. Kunzig, dated August 31, 1971.
3. Memorandum to the Secretary (not yet approved), dated September 13, 1971.

Also, we originally included \$13.45 million in our Fiscal 1973 Financial Plan for the New Denver Mint Project. On September 1, 1971 we reduced our request to \$3.45 million, as explained on the attached data sheet. *

Sincerely,

SIGNED S. F. CARWILE

Sidney F. Carwile
Acting Director of the Mint

*

(Typed notation: Mrs. Brooks
Handed to Norman E. Sims Jr, Director Treasury Office
of Budget & Finance, Treasury budget meeting 9/1/71)

Enclosures (4)

Memorandum

TO : Memorandum for the Record

DATE: August 24, 1971

FROM : Robert R. Fredlund

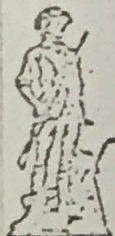
SUBJECT: New Denver Mint

Sid Carwile, Acting Deputy Director of the Bureau of the Mint, Dr. Alan Goldman, Technical Consultant to the Director and Mr. George Ambrose, Chief, Industrial Facilities and Mr. McDonald, a consultant to the Bureau of the Mint met yesterday afternoon, August 23, with Mr. John C. Dye and James Johnson of the Public Buildings Service and myself, to discuss the planning and procedures for acquiring the site for the Denver Mint in accordance with the appropriation authorized by Public Law 92-49, 92nd Congress.

Mr. Dye reviewed for us a number of the considerations involved in proceeding with the site acquisition including the necessity for appropriate contacts with the Colorado Congressional Delegation, Governor John Love and the Mayor of Denver. Mr. Dye also indicated the need for careful consultation with other Federal agencies as well as with local governmental officials regarding housing, planning, zoning, redevelopment, job programs and related matters. Mr. Dye specifically called our attention to provisions of OMB Circular A-95 and also the Intergovernmental Cooperation Act which requires this kind of coordination.

Mr. Dye also specifically pointed out the need to consider the requirements of Executive Order 11512 in the selection of the site, specifically with respect to the availability of adequate low and moderate income housing and consistency with state, regional and local plans and programs, specifically paragraphs 6 and 7 of Section 2 of Executive Order 11512 (copy attached).

In the ensuing discussion, it was developed that GSA would, through their Regional Administrator Waggoner, have the responsibility for proceeding with the site acquisition action but would work in close cooperation with Mint officials from Washington and myself. It was understood, however, that it is quite likely that Mrs. Mary Brooks, the Director of the Mint, would prefer to be personally involved in any contacts with the Congressional Delegation, the governor and the mayor. Mr. Dye is going to ask his supervisor, Mr. Ray Nixon, to explore the procedure on this with GSA's Congressional Liaison Staff, and he will advise us next week when Mr. Nixon returns.

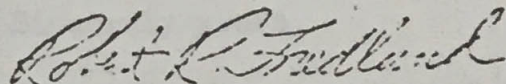


In the meantime, we are to prepare for Mr. Betts' signature a further letter to Administrator Kunzig in which we enclose our criteria for the site selection. Mr. Carwile and his staff will prepare this letter, the supporting criteria, along the lines of that previously developed and incorporate in it the August 5, 1971, site criteria statement. However, additional information will be included particularly with respect to the need to consider relocation assistance costs and other factors in line with the attached statement left with us by Mr. Dye. *

It is understood that after we forward our site selection criteria to GSA that GSA, in turn, after working with us on the appropriate congressional contacts, will authorize Regional Administrator Waggoner to proceed to initiate the contacts with the governor and the mayor, and then with the site delineation investigation. In this connection, it would appear that representatives from this office may need to accompany Bureau of the Mint and GSA officials to Denver for the purpose of additional planning with GSA's Regional Administrator Waggoner and his staff.

One of the main questions that is going to have to be resolved in the very near future is the kind of Mint building which will be constructed. This determination will have a significant effect on the site selection. Specifically, if it is determined that the new Denver Mint will be an efficient, modern manufacturing plant with a continuous process work flow, this will require a building spreading over a number of acres and will probably require a site as large as 25 acres.)

On the other hand, if the new Mint is to also serve as a tourist attraction and must be located in downtown Denver, then it will have to be more of the monumental type of building and constructed up higher so as to utilize the lesser amount of space that would be available in a suitable downtown area. I will ask Mr. Carwile to prepare a suitable memorandum for the Director of the Mint to send to Assistant Secretary Rossides and the Secretary, presenting the "pros and cons" for each type of structure, with recommendations as to the decision to be made.



Robert R. Fredlund
Director of Administrative Programs

Attachments

cc: Mr. Carwile
Mr. Dickey
Mr. Betts
Mr. Brooks
Mr. Greenlee
Mr. Dye

* We will also provide Mr. Dye with a copy of the Environmental Impact Statement which was filed last year with the Council on Environmental Quality.

Aug 31, 1971

Honorable Robert L. Kunzig
Administrator
General Services Administration
Washington, D. C. 20405

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S/

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Assistant Secretary for Administration

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August 25, 1971

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September 13, 1971

MEMORANDUM TO THE SECRETARY:

From: Mary Brooks
Director of the Mint

Through: Mr. Rossides
Mr. Betts

Subject: Design of the New Denver Mint

*Revised by F. Macdonald
- Conceptual Outline*

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From experience gained on the recently completed Philadelphia Mint, the Bureau of the Mint must take the position that the new facility must be planned to most effectively and efficiently support coin production operations, and that provisions for visitors which cannot be overlooked, must be considered secondary to operational efficiency.

	Initiator	Reviewer	Reviewer	Reviewer	Reviewer	
Surname	Brooks	Fredlund	Dickey	Rossides	Betts	Ex. Sec.
Initials						

We have, in the past, indicated an area of 25 to 30 acres would be required for a site. We have not altered our thinking on this because such a land area is necessary in order that a horizontal in-line production flow of in-process materials and end product can be accomplished. We feel that this land area should be considered foremost in our site selection because of its significance in affording us the much needed advantage of fitting the building (or buildings) to the operation, and providing the future expansion capability needed for increased production.

Locating the new mint in the downtown area would provide availability of public transportation for employees. This advantage is offset by the availability of better housing and parking spaces afforded in selecting a site away from the center of the city. Although further evaluation is in order, we already have in mind one site which is removed from the downtown area and meets our criteria with regard to size. This site is west of and adjoins the North Platte River, and is to the west of downtown Denver.

It is planned to utilize latest industrial and production engineering concepts in providing ideal production equipment layout, manufacturing processes and materials handling features intended to result in the most economical manufacturing costs. Also, we will be able to minimize construction costs by selecting a site of adequate size and unrestricted location so that a single-story building concept with reasonably attractive facing can be provided.

We believe it necessary to provide adequate facilities for tourist visitation, to the extent necessary for their viewing the coin manufacture operations. We would otherwise hope to hold investment on exterior appearance to a minimum, planning to provide attractive building facing such as aluminum, enamelized steel, precast concrete, or other materials consistent with plans for development of the area in which the site is located. It is practical to provide an attractive plant with adequate visitor facilities without compromising efficiency of the manufacturing operations for which the facility was justified and intended.

It is therefore recommended that the Facility, and thus the site, be predicated on the needs for a well planned production plant. To meet this requirement an area of 25 to 30 acres, not necessarily located in the downtown Denver area, must be provided.

We are including a copy of our site selection criteria, dated August 25, for information.

Attachment

Approved _____

Secretary

Mr. Paul McDonald
Director, Office of Administrative Services

May 22, 1970

Mrs. Mary Brooks
Director of the Mint

Environmental Statement
Future New U. S. Mint - Denver, Colorado

A. Probable Impact New Mint May Have on Environment

Any facility conducting such operations as will be conducted in the new Mint will generate materials, the external dispersion of which may adversely affect the atmosphere and hydrological environment. It is intended to adequately control potential contaminants so as to preclude any adverse effect.

Long range plans provide for the acquisition and ultimate use of some 30 acres of land area, affording room for expansion as well as the inclusion of ancillary equipment required to treat plant effluents for rigid control of potential contaminants.

B. Probable Adverse Effects Which Cannot Be Avoided

No known adverse effects will result from the construction and operation of the new Mint. Operations from which pollutants may result and the method of controlling same are outlined as follows:

(1) Water Pollution

Waste water, with several degrees and types of contamination, may be generated in the new facility.

Acid waste from Assay Laboratory operations will be generated, but will be passed over a bed of neutralizing media, such as limestone, before discharging into the sewer system.

Process cooling water necessary for the operation of air compressors, furnaces, casting equipment, roll mills, etc., will be filtered for removal of solids. Temperature rise in the process cooling water will necessitate the use of cooling towers and heat exchangers for temperature reduction. Recycling will enable reuse of water thus effecting conservation. Small amounts will be diverted to the sewer system but should contain no contaminants and should not be of higher temperatures.

Water soluble oils, used for cooling rolls in the reduction mills, will be recycled and reused. The oil will subsequently become unusable and will be diverted to storage tank for removal by tank truck for final disposal.

Condensate from the steam system will not be run to the sewer system, but will be diverted to process cooling water or returned to the steam generation plant for use as makeup water.

The blank cleaning, and strip-bonding, cleaning line requires the use of cleaning solutions, detergents, and abrasives which are used in conjunction with water. This waste will be diverted to a settling basin for neutralization and solids removal before being diverted to the sewer system.

(2) Air Pollution

Mint processes require the melting and casting of various metals and metal alloys in the manufacture of coins. Also, incineration of certain waste materials is necessary for disposal. Metallurgical gases, fumes, and smoke generated from the above processes will be passed through a scrubber (mixing tank for the gases and water supply), then run to a settling basin wherein the solids precipitate out and are removed. Scrubber water will be recirculated for reuse with about 10 per cent makeup required. Water within the system may be periodically dumped into the sewer system when settling tanks are cleared, or it may be disposed of by trucking from the facility for disposal.

Fumes and exhaust from laboratory hoods in the Assay Offices will be evaluated and if the concentration of contaminants is negligible, they will be exhausted direct to the atmosphere. Should it be necessary, the exhaust will be passed through a filter media for neutralization.

Air exhausted to the outside atmosphere direct from equipment will be run through filters or adsorption media to remove solid particles and excessive amounts of moisture as may be necessary.

Need for filtering air being exhausted from general work areas to the atmosphere is not foreseen.

C. Alternates to Proposed Action

The new Mint facility will, of course, necessitate the expenditure of resources, i.e. water, natural gas, electrical service, and those

basic resources utilized in the construction and equipping of the plant. Offsetting this, in part, will be those resources conserved by curtailing operations in the old Denver Mint.

Utilization of a land area heretofore uncommitted to industrial application is planned. In exchange for this utilization, ultimately the present Mint site may be programmed for use in expanding country/city government office areas.

No alternates to the construction of a new Mint are offered. Projected demand for coins dictates that a new facility be provided since required production cannot be accomplished in existing Mint institutions.

D. Irreversible or Irrecoverable Commitments of Resources

Construction of the new Mint in Denver is not expected to commit resources to the point of being irreversible or irretrievable. Should, for some reason, the facility be ultimately closed and physically removed, return of all natural resources to previous conditions could be effected.

Construction Funds for FY 1973

Our FY 1973 Financial Plan included \$13.45 million in Mint Construction Funds which was planned for the New Denver Mint Project. Of this amount, \$10 million was intended for initiating contracts on long-lead equipment and \$3.45 million was programmed for use in contracting for Architect-Engineer Services.

We believe it is reasonable to defer the requested \$10 million equipment funds to FY 1974 because specifications need to be prepared and solicitation for bids on long-lead items could be implemented before funds are available. This action would minimize the impact of deferment.

We do not believe the \$3.45 million requested for A & E Services can be postponed without an equivalent loss of time on the project. We plan to complete in-house preliminary work on the new mint in FY 1972 and be ready to select and negotiate with an A & E firm early in FY 1973. Any time lost in starting the A & E firm after we have completed our preliminary criteria will be irrecoverable. If funds for engineering are deferred to FY 1974, about one year will have been lost on the project.

The \$3.45 million planned for A & E services include the following areas of work which must be developed concurrently:

Final Criteria Development	\$ 250,000
Site Development Drawings and Specs.	200,000
Facility (Building) Design	1,100,000
Preparation of Equipment Specifications and Installation Drawings	<u>1,500,000</u>
Total	\$3,450,000

It is requested that funds in the amount of \$3.45 million for A & E Services be retained in the FY 1973 Budget in order that the New Denver Mint may proceed without delay.

September 1, 1971

Copy to: Director
McDonald
N. Simms
A. J. Goldman
Chmn. File.

Mrs Brooks

THE DEPARTMENT OF THE TREASURY

WASHINGTON, D.C. 20270

AUG 16 1971

Honorable Robert L. Kunzig
Administrator
General Services Administration
Washington, D.C. 20405

Dear Mr. Kunzig:

Treasury's interest in acquiring a site for the new Mine at Denver, Colorado was recently discussed with you in a letter from the Director of the Mint, Mrs. Brooks. I have a copy of your response dated August 6, 1971, in which you pointed out some of the planning factors that are critical to this program.

The Bureau of the Mint has developed a preliminary site selection criteria and they along with my staff are ready to work with Mr. Nixon's office to finalize site selection requirements. I have designated Mr. Robert Fredlund, Director, Administrative Programs, to provide the overall coordination of the project. He may be reached on code 184-2881.

Recognizing that a variety of planning considerations need to be discussed before we can confirm a specific site, I recommend a preliminary meeting on the subject be held in the office of Mr. Robert Fredlund, room 2324 Main Treasury. I propose a tentative date of August 23 at 1:30 p.m. or an alternate date of August 24 at 10:30 a.m.

I would like to again emphasize Treasury's deep interest in moving this project ahead as quickly as possible.

Sincerely yours,

Ernest C. Betts, Jr.
Assistant Secretary for Administration

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION
WASHINGTON, D.C. 20405



AUG 6 1971

Honorable Mary Brooks
Director of the Mint
Department of the Treasury
Washington, D.C. 20220

Dear Mrs. Brooks:

Thank you for your letter of July 22 advising of the availability of funds to acquire a site for the new Mint at Denver, Colorado.

We are certainly pleased that the site phase of this important project can now move forward. However, before we can issue a directive to Regional Administrator Waggoner to proceed with site acquisition action, it will be necessary to develop important site criteria such as minimum size and the delineated area for site location. Other considerations in this regard will also be necessary in the light of recent Executive Orders and legislation pertaining to governmental land acquisition. Accordingly, it will be appreciated if you will designate a representative to collaborate on this matter with Mr. R. I. Nixon, Assistant Commissioner for Operational Planning, Public Buildings Service. Mr. Nixon can be reached by telephone on code 183-8241.

We look forward to working with you on this project through its completion.

Sincerely,

Robert L. Kunzig
Administrator

M. J. Sizemore
Deputy Assistant Administrator

Handwritten signature/initials

Roy T. Englert
Deputy General Counsel

July 29, 1971

(Signed), S. E. Carwila
Sidney F. Carwila
Acting Director of the Mint

Justification for increase in authorization for construction funds.

The proposal for changes in Mint legislation includes a recommendation for an increase from \$45 million to \$95 million, in the amount authorized by 31 U.S.C. 294 for Construction of Mint Facilities. This increase together with the balance remaining from the previous authorization, will permit construction of a new Mint in the City of Denver to replace the existing Mint at that location. This proposed new Mint already has Departmental, OMB, and Congressional approval, and the fiscal year 1972 budget includes \$1.5 million for acquisition of a site.

Preliminary funding requirements for the new Denver Mint have been projected, and appear to be in the order of \$54.51 million. Our projection is based upon several factors, the most important of which are outlined below.

The recently completed Philadelphia Mint, designed for a production capacity of 4 billion coins per year, was provided at a cost of \$39.47 million. The production capacity of the new Denver Mint is projected for 6 billion coins per year at a \$54.51 million facility cost.

Although we project a 50% increase in production capacity for the new facility, we project a cost increase of only 30% for several reasons.

Whereas location of the Philadelphia Mint dictated the requirement for a monumental structure resulting in a significant increase in overall cost of the facility (granite facing, special architectural features, tourist accommodations), we expect to minimize such cost in the new facility.

Also, cost of production equipment does not necessarily relate directly to overall capacity, inasmuch as one each of several major equipment items will suffice either on a 4 billion or 6 billion per year production basis.

In addition to the above, we have recognized that probable escalation of costs in wages and materials will increase the cost of the new facility.

The overall cost projection of \$54.51 million for the new Denver Mint is divided into the following general categories:

Million \$

Site	\$ 1.50
Building	26.32
Equipment	25.81
Equipment Relocation	.28
Start-up and Run-in	<u>.60</u>
	\$ 54.51

n. mint

July 22, 1971

The Honorable
Robert L. Kunzig
Administrator
General Services Administration
Washington, D. C. 20405

Dear Mr. Kunzig:

Public Law 92-49, approved July 9, 1971, provides an additional \$1,500,000 for Mint facilities, as authorized by the Act of August 20, 1963, as amended (31, U.S.C. 291-294). The primary purpose of this \$1,500,000 appropriation is to acquire a building site for a new Denver Mint.

Deputy Assistant Secretary of the Treasury William L. Dickey and I have discussed our site requirement with Regional Administrator Robert E. Waggoner in Denver. It is urgent that we move promptly to acquire an available site which appears to be desirable. Therefore, it would be appreciated if you would authorize Mr. Waggoner to purchase a site for us.

BY
WLB:sk
STOS?

Sincerely,

(Signed) Mary Brooks

Mary Brooks
Director of the Mint

cc: Mr. Robert E. Waggoner
Regional Administrator
General Services Administration
Building 41 - Denver Federal Center
Denver, Colorado 80225

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION
WASHINGTON, D.C. 20405

JUL 2 1970

Mr. William L. Dickey
Deputy Assistant Secretary
for Enforcement and Operations
Department of the Treasury
Washington, DC 20220

Dear Mr. Dickey:

This is in response to your letter of June 18, 1970, requesting our comments on the planning schedule for construction of a new Mint in Denver, Colorado.

We have reviewed the milestone events shown on the schedule and consider the four years for design and construction of the building and building services to be reasonable. We suggest that selection of the architect-engineer be advanced so that the firm can participate in development of the criteria for the proposed project. We also suggest that a planning milestone be included which would show site selection prior to design start and site acquisition prior to construction start.

To assure the necessary coordination between design of the building and the equipment, we suggest that contracts be awarded to the same architect-engineer similar to the procedure followed on the Mint in Philadelphia.

We appreciate the opportunity of reviewing the planning schedule and look forward to working with you on this project.

Sincerely,

Rod Kreger
Assistant Administrator

Copy: Curran
Hollifield
Cahoon

PLANNING SCHEDULE - NEW DENVER MINT

TIME IN FISCAL YEARS

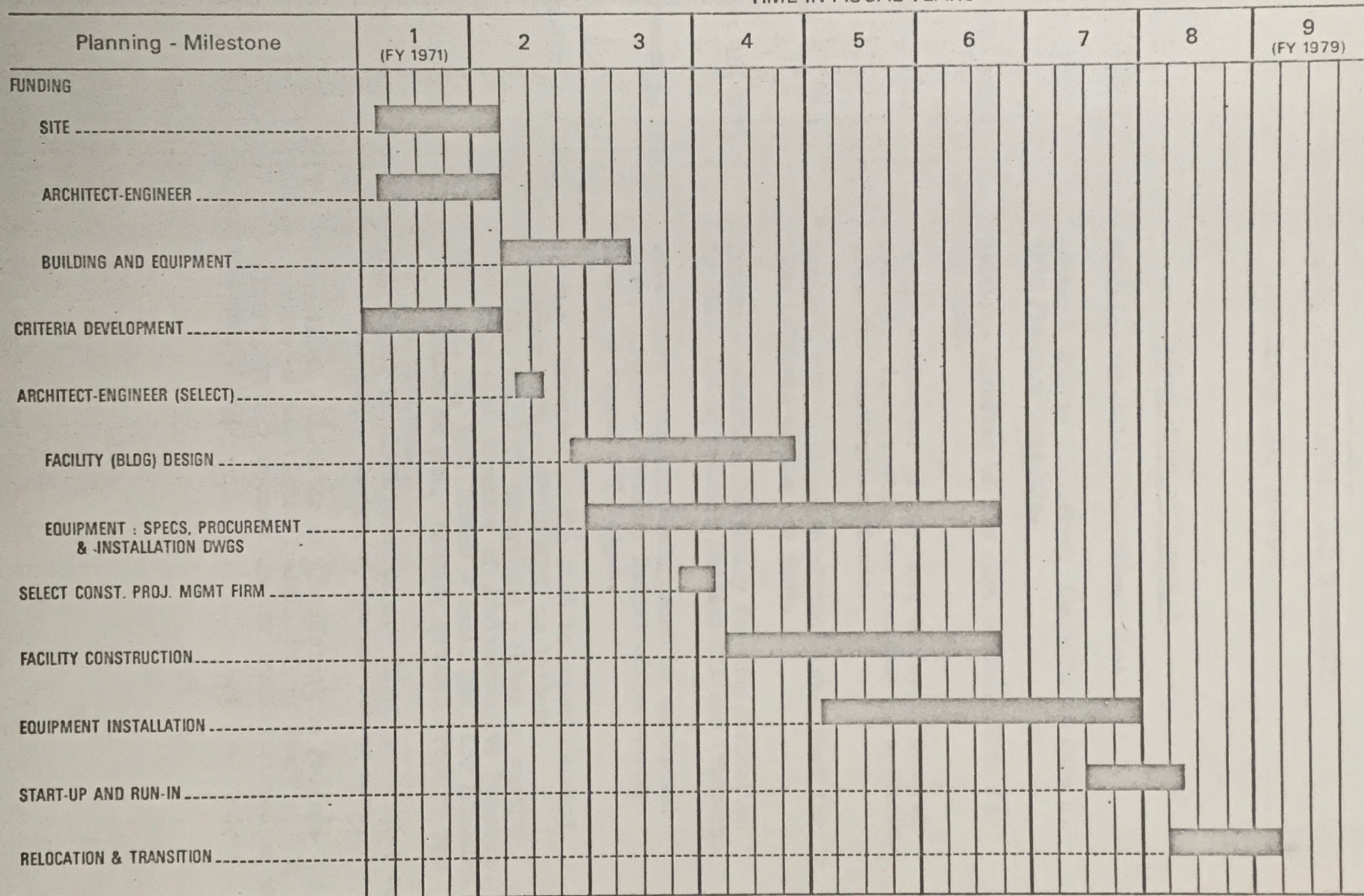


TABLE OF CONTENTS

CHRONOLOGICAL LIST OF LETTERS AND DOCUMENTS

NEW DENVER MINT PROJECT

<u>Date of Document</u>	<u>Description of Document</u>
June 4, 1970	Planning Schedule. New Denver Mint
July 2, 1970	Letter - GSA to W. Dickey. Comments on June 4, 1970 Planning Schedule..
July 22, 1971	Letter - Director of the Mint to GSA. Site for new Mint.
July 29, 1971	Letter - Director of the Mint to Deputy General Counsel. Justification for increase in authorization for construction funds.
August 6, 1971	Letter - GSA to Director of the Mint. Need for Site Criteria on the new Mint.
August 16, 1971	Letter - Assistant Secretary for Administration to GSA. Set up meeting between GSA and Treasury.
September 1, 1971	Data Sheet - Funding realignment on new Denver Mint. Given to Treasury Budget office during review of Fiscal '73 Budget.
September 20, 1971	Letter - Director of the Mint to Superintendent of Denver Mint. ENCLOSURES to letter: (1) Aug. 24, 1971 Memorandum - Notes on meeting held with Director of Administrative Programs. (2) Aug. 31, 1971 letter - Asst. Sec. for Administration to GSA. Meeting between Treasury and GSA Officials. (3) Sept. 13, 1971 Memorandum - Director of Mint to Secretary. Design of the new Denver Mint.
September 29, 1971	Memorandum - Director of Administrative Programs to Director of the Mint. Transmittal of draft of GSA letters, to set up meetings for initial action on the new Denver Mint.

Date of
Document

Description of Document

October 27, 1971	Memorandum - Director of Administrative Programs to W. Dicker and Mary Brooks. Details of meeting in Denver.
October 28, 1971	Memorandum - W. Dickey to Asst. Sec. Rossides. Conceptual Criteria for new Denver Mint.
October 28, 1971	Memorandum - Director of the Mint to Asst. Sec. Rossides. Conceptual Criteria, new Denver Mint.
October 29, 1971	Memorandum - Dr. A.J. Goldman to F.H. MacDonald. Program for use of \$3.45 Million in A-E funds in FY 1973 Budget. ENCLOSURES to memorandum: (1) Estimated Cost Table - new Denver Mint (2) Funding Schedule - new Denver Mint (3) Planning Schedule FY 1973 A-E funds -new Denver Mint
November 1, 1971	Memorandum - F.H. MacDonald to Director of the Mint. Program realignment and funding.
November 1, 1971	Memorandum - F.H. MacDonald to Dr. A.J. Goldman. Program realignment and Funding.
November 4, 1971	Memorandum - Dr. A.J. Goldman to F.H. MacDonald. Program and Funding realignment - new Denver Mint. ENCLOSURES to Memorandum: (1) Organization Plan for Criteria Development (2) Outline of Projected activities through design (3) CPM = Critical Path Method schedule on engr. activities.
November 4, 1971	Memorandum - Deputy Director of Mint to Deputy Asst. Secretary for Enforcement and Operations. Outline of realigned program and funding.
November 4, 1971	Memorandum - Director of the Mint to Superintendent of the Philadelphia Mint. Criteria Development on new Denver Mint.
November 4, 1971	Planning Schedule - New Denver Mint

1 BLDG

MELTING

CASTING

BREAKDOWN

SURFACE MILLING

2ND

STRIP PREP

BLANK PREP

COINING

COIN STORAGE

CAN BE

3RD

ADMIN

MULTI-STORY

WAREHOUSE

SERVICE FUNCTIONS

STORAGE

750,000

New Mont. Site File

Present Denver Mint Addition

May 15, 1975

Colorado Bid Depository
877 Wyandot Street
Denver, Colorado 80204

Gentlemen:

The Denver Mint plans to issue an invitation for bids for an addition to the Denver Mint, located at 320 W. Colfax Avenue, Denver, Colorado. Details pertaining to this IFB are as follows:

Scope of Work - Design and construction of an addition to the Denver Mint, consisting of a 1,000 sq. ft. coin storage structure, a 500 sq. ft. loading dock and a loading apron. Estimated cost is approximately \$75,000.

IFB No. - BM-D-75-19. Issue date May 19, 1975. Bid opening 2:00 P.M. local time at place of bid opening, June 5, 1975.

For more information - contact Mr. Duane Sjaardema at the Denver Mint, telephone number (303) 837-4508.

Sincerely,

(Mrs) Betty Higby
Superintendent

FWR:ba

May 15, 1975

SE CEDA
621 Fox Street
Denver, Colorado 80204

Attention: Mr. Frank Jaramillo

Gentlemen:

The Denver Mint plans to issue an invitation for bids for an addition to the Denver Mint, located at 320 W. Colfax Avenue, Denver, Colorado. Details pertaining to this IFB are as follows:

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For more information - contact Mr. Duane Sjaardema at the Denver Mint, telephone number (303) 837-4508.

Sincerely,

(Mrs.) Betty Higby
Superintendent

FWR:ba

May 15, 1975

Rocky Mountain Construction
2201 Stout Street
Denver, Colorado 80205

Gentlemen:

The Denver Mint plans to issue an invitation for bids for an addition to the Denver Mint, located at 320 W. Colfax Avenue, Denver, Colorado. Details pertaining to this IFB are as follows:

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For more information - contact Mr. Duane Sjaardema at the Denver Mint, telephone number (303) 837-4508.

Sincerely,

(Mrs.) Betty Higby
Superintendent

FWR:ba

May 15, 1975

Rocky Mountain Chapter, ABC
1946 West 12th Place
Denver, Colorado 80204

Gentlemen:

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For more information - contact Mr. Duane Sjaardema at the Denver Mint, telephone number (303) 837-4508.

Sincerely,

(Mrs.) Betty Higby
Superintendent

FWR:ba

May 15, 1975

Daily Journal
1217 Welton Street
Denver, Colorado 80204

Gentlemen:

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For more information - contact Mr. Duane Sjaardema at the Denver Mint, telephone number (303) 837-4508.

Sincerely,

(Mrs.) Betty Higby
Superintendent

FWR:ba

Called in to GSA Teletype communications on
5/15/75

NAME OF AGENCY United States Mint Denver, Colorado	PRECEDENCE
	ACTION:
	INFO.:
ACCOUNTING CLASSIFICATION	TYPE OF MESSAGE ☐ SINGLE ☐ BOOK ☐ MULTI-ADDRESS

SECURITY CLASSIFICATION

STANDARD FORM 14 MARCH 1957
GENERAL SERVICES ADMINISTRATION
FPMR (41CFR) 101-35.306**TELEGRAPHIC MESSAGE**OFFICIAL BUSINESS
U. S. GOVERNMENT

THIS BLOCK FOR USE OF COMMUNICATIONS UNIT

MESSAGE TO BE TRANSMITTED (Use double spacing and all capital letters)

THIS COL. FOR AGENCY USE

Synopsis Commerce Dept. Field Services**Chicago, Illinois****Synopsis No. 13****United States Mint, 320 W. Colfax Ave.****Denver, Colorado 80204**

Y -- Design and construction of an addition to the Denver Mint consisting of a 1000 sq. ft. coin storage structure and a 500 sq. ft. loading dock. Estimated cost approx. \$75,000. IFB BM-D-75-19 -- Issue date 5/19/75 -- Bid opening 6/5/75. Two P.M. local time. For more information contact Mr. Duane Sjaardema, Denver Mint, telephone 1303/ 837-4508.

DO NOT TYPE MESSAGE BEYOND THIS LINE

PAGE NO. NO. OF PAGES

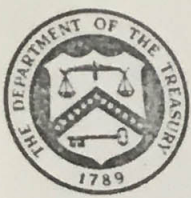
NAME AND TITLE OF ORIGINATOR (Type)
**Betty Armbruster
Procurement Officer**ORIGINATOR'S TEL. NO.
303-837-4093DATE AND TIME PREPARED
May 15, 1975

SECURITY CLASSIFICATION

I certify that this message is official business, is not personal, and is in the interest of the Government.

(Signature)

START MESSAGE ADDRESS HERE



OFFICE OF
SUPERINTENDENT

THE DEPARTMENT OF THE TREASURY

UNITED STATES MINT
DENVER, COLO. 80204

April 12, 1976

Honorable Patricia Schroeder
Representative, U. S. Congress
Denver Federal Building
1767 High Street,
Denver, Colorado 80218

Dear Mrs. Schroeder:

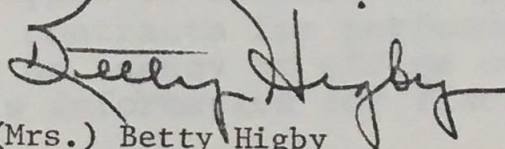
In response to your inquiry of March 29, 1976, File #860.g-51, the following information is respectfully submitted:

(a) On February 20, 1975, a contract, TM-D-75-1131P, in the amount of \$3,500.00, was entered into with the Ken R. White Company, 3955 East Exposition Avenue, Denver, Colorado, 80209. This contract provided for the engineering services and labor necessary to perform a structural analysis of the existing first floor system of the 1935 addition to the U. S. Mint, Denver. Specifically, this study was conducted to determine if the floor was structurally sound to support the addition of new, heavier coin presses in the locations as proposed by the Mint. The contractor concluded that the floor had the capacity to support loads of types and at the locations proposed by the Mint. However, the Contractor recommended "all presses should be mounted on vibration isolators capable of reducing impact loads by at least 50 percent." This has been done. In accordance with Federal Procurement Regulations, the normal procedure for procurement of engineering services, and other professional services, is to negotiate a contract as was done in this case. The Ken R. White Company had performed a similar study for the Bureau of the Mint on Contract TM-74-49. Much of the data and information used in conducting that analysis would be pertinent to this study. Because of this previous work by the Ken R. White Company, it was determined that said company was in a better position to conduct the required analysis expeditiously and at minimum cost in comparison to other possible engineering firms. The final report was received from the contractor on April 4, 1975, completing the contract.

(b) The percent of the fiscal year 1975 budget expended for the aforementioned effort was .0439 percent.

(c) On December 7, 1973, the Bureau of the Mint, Washington, D. C., awarded Contract TM-74-49, in the amount of \$6,794.00, to the Ken R. White Company, 3955 East Exposition Avenue, Denver, Colorado, 80209. This contract was for the necessary engineering services and labor to perform a structural analysis of the existing floor system of the 1946 addition. The primary area to be analyzed was the first floor production area in which the annealing furnaces, blanking presses, and coin presses were depicted for maximized production. The second floor, 1946 addition, was to be analyzed for static loading only (storage of coils, bags of coins, etc.). Specifically, the study was to determine the capability of the existing floor structures to support static and dynamic loads from specified existing and proposed new presses, furnaces and their peripheral equipment, and, if necessary, recommend methods of support should the analysis show the existing structure to be insufficient to support safely the proposed equipment, or recommend alternate arrangements. The contractor concluded that the first floor had the capacity to support the loads from the types and locations of the equipment proposed by the Denver Mint. Again, the contractor recommended that all presses be mounted on vibration isolators capable of reducing impact loads by at least 50 percent. The Denver Mint had proposed a live load of 500 pounds per square foot for the second floor. The Contractor stipulated that the maximum live load allowed on the second floor should not exceed 325 or 360 pounds per square foot, dependent upon the area. The Contractor's recommendations have been complied with. The Contractor's final report was received on February 15, 1974, completing the contract.

Sincerely,

A handwritten signature in cursive script, appearing to read "Betty Higby". The signature is written in dark ink and is positioned above the typed name and title.

(Mrs.) Betty Higby
Superintendent

PATRICIA SCHROEDER
1ST DISTRICT, DENVER, COLORADO

DISTRICT OFFICE:
DENVER FEDERAL BUILDING
1767 HIGH STREET
DENVER, COLORADO 80218
(303) 837-2354

WASHINGTON OFFICE:
1131 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, D.C. 20515
(202) 225-4431

To: J. Justice

ARMED SERVICES COMMITTEE
POST OFFICE AND CIVIL
SERVICE COMMITTEE

Congress of the United States

House of Representatives

Washington, D.C. 20515

RECEIVED

March 29, 1976

Betty Higby
Superintendent
U.S. Mint
320 W. Colfax Ave.
Denver, CO 80202

APR 1 1976
OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

Dear Ms. Higby:

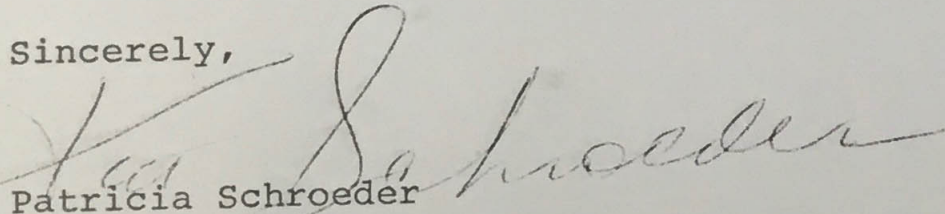
I would appreciate your sending the following information to me at my Denver District Office, referring in your reply to my file #860.g-51.

1. A list of all consulting contracts let by your office or an office under your jurisdiction for fiscal years 1975, 1974, and 1973. Please include a brief description of the contract and its purpose, the name of the consultant, the amount paid the consultant, and what was done with the results of the consultation. Also, please include whether the contract was competitively let (and if not, why not) and whether the contract has been completed (and if not, what is its status).
2. The percent of your administrative budget which was expended on such contracts for fiscal years, 1975, 1974, and 1973.
3. A list -- including all the types of information provided in number 1 above -- for all contracts for performance in your jurisdiction but let by an agency or office other than yours. Please send this information for fiscal years 1975, 1974, and 1973.

If you have any questions, please call my Denver Staff Aide, Marc Rosenbaum, at 837-2354.

With kind regards,

Sincerely,


Patricia Schroeder
Member of Congress

PS:mr:sd

Transmitted via Telecopier, 4-2-76, @ 2:45 pm

Present Denver Mint Addition

Enclosure of Mount Long-Pongé
Ploemung File

BmLRP

New Design

PLANNING CALCULATIONS | Page 1 of 19 Aug 1972

~~MATERIAL FLOW~~

J. W. Allen

Melting
Melting & Casting Requirements~~104167~~

1# Material	124,123,410 ✓ lbs/yr
5# Material	34,428,007 ✓ lbs/yr
Cupro Nickel (clad for Phil. (9,000,000 x 1.3847)	12,462,300 ✓ lbs/yr

Total 171,013,717 lbs/yr

Shifts/Yr

$$1\# \frac{124,123,410}{171,013,717} \times 720 = 522.58 \quad \underline{\text{USE 523}}$$

$$\text{Cupro-Nickel} \frac{46,890,307}{171,013,717} \times 720 = 197.4 \quad \underline{\text{USE 197}}$$

Tons/Hour

$$1\# \frac{124,123,410}{2,000 \times 8 \times 523} = 14.8331$$

(8,368,000)

$$\text{Cupro-Nickel} \frac{46,890,307}{2,000 \times 8 \times 197} = 14.8764$$

(3,152,000)

Note: BmLRP Fuel Cost 5" x 30" x 23"
Theoretical output is 14,040 lbs

Page 1 A of —

WT Ingots/Coils

BRONZE

BRONZE

Cast Ingot 14,049 lbs

Cropped x.95 ~~13,480~~ 13,347

~~Roller~~

Breakdown - Co. 1 x.98 ~~13,210~~ 13,080

Co. 1, Scarfed x.88 ~~11,624~~ 11,510

~~Roller~~

Coil, Slit x.96 ~~11,159~~ 11,050

CUPRO-NICKEL

18.3

Cast Ingot 14,049 lbs

Cropped x.95 13,347

Breakdown x.98 13,080

Coil, Scarfed x.85 11,118

Coil, Slit x.96 10,063

Blinking / Coining Requirements

		<u>1980</u>	<u>Future</u>
1¢	14.586	6,780,000,000	9,000,000,000
5¢	14.1003	450,000,000	1,500,000,000
10¢	20.0930	160,000,000	160,000,000
25¢	15.6911	80,000,000	80,000,000
50¢	17.3282	40,000,000	40,000,000
\$1	16.1331	40,000,000	40,000,000
Other Coins	6940	120,000,000	120,000,000

BRONZE FIGURES

Start 14.8331 Tons/Hour

x .98 14.5364

x .97 14.1003

x .95 x $\frac{3}{2}$ 20.0930

x .98 19.6911

x .88 17.3282

x .96 16.6351

x .70 11.6446

$$\begin{array}{r} 13.3953 \\ 6.6977 \\ \hline 20.0930 \end{array}$$

$$\begin{array}{r} \times 2.22 = 25.8510 \\ \text{P.L.I.} \\ 2.8723 \end{array}$$

$$\times 6.78 = 78.9504$$

$$\times .95 \quad 2.7287$$

Penner

$$8.7723$$

$$2.8723$$

$$8.7723$$

$$\hline 11.6446$$

$$\times .95 \quad 8.3337$$

~~Coins Produced Check~~

$$8.3337$$

$$2.7287$$

$$\hline 11.0624 \times 2,000 \times 8 \times 523 \times 7000$$

48

Check

Wt Coins Required

(432,000,000)

$$\frac{9,000,000,000 \times 48}{7,000} = 61,714,286 \text{ lbs}$$

Wt Coins Produced

(8,368,000)

$$11.6624 \times 2,000 \times 8 \times 523 \times \frac{2}{3} = 61,713,442$$

844 lbs

$$\begin{array}{r} 8.3337 \\ 2.7287 \\ \hline 11.0624 \end{array}$$

Chad
Jann

Scrap Return Calculations - 14

Page 3 of —

	14.8331		14.5364	
	<u>14.5364</u>		<u>14.1003</u>	
	.2967		.4361	
	<u>.1484</u>		<u>.2181</u>	
	.4451		.6542	
	14.1003			
	<u>7.0502</u>		20.0930	19.6911
	21.1505		<u>19.6911</u>	<u>17.3282</u>
	<u>20.0930</u>		.4019	2.3629
	1.0575	÷3	.13397	÷3 .7876
÷3	.3525	x2	26724	x2 1.5752
x2	.7050			
	17.3282		16.6351	2.8723
	<u>16.6351</u>		<u>11.6446</u>	<u>2.7287</u>
	.6931		4.9905	.1436
÷3	.2310	÷3	1.6635	÷3 .04787
x2	.4620		3.3270	x2 .09574
	8.7723			
	<u>8.3337</u>		÷3	11.1874
	.4386		x2	3.7291
÷3	.1462			7.4582
x2	.2924			

(Check) New Feed = 7.3751

Adjust (3/2) 3.6876

11.0627 Total/H-

14.8331
7.3751
7.4580

Coins Produced Denver 8.3337
Ph. I. 2.7287
11.0624

Chad
2nd

CUPRO-NICKEL MATERIAL Flow Calculations

Start 14.8764 Tons/Hour

X .98 14.5789

X .97 14.1415

X .95 x $\frac{3}{2}$ 20.1516

X .98 19.7486

X .85 16.7863

X .96 16.1148

4.2830

11.8318

13.4344

6.7172

20.1516

9,000,000 lbs out for
Shipment to Phil. for
Cled Bonding Mill

$$9,000,000 \div 2,152,000 = 4.2830 \text{ Tons/Hour}$$

$$\frac{2}{3} \times 197 \times 8 \times 2,000$$

$$(3,152,000)$$

11.8318 for 5d Production

1.172 Tons/Hour
Yearly Avg.

X .70 8.2823 x 10.5 = 86.96415 ÷ 15 = 5.7976

x 4.5 = 37.27035 ÷ 15 = 2.4847

8.2823
dash

Phil. 5.7976

X .95 5.5077

Denver 2.4847

X .95 2.3605

$$\begin{array}{r} 11.0229 \\ 7 \overline{) 77.16} \\ \underline{7} \\ 7 \\ \underline{7} \\ 16 \\ \underline{14} \\ 20 \\ \underline{14} \\ 6 \end{array}$$

(check)

Wt Coins Required

$$1,500,000,000 \times \frac{77.16}{7,000} = 16,534,350 \text{ lbs}$$

Wt Coins Produced

2.3605

5.5077

7.8682

$$7.8682 \times 2,000 \times 8 \times 197 \times \frac{2}{3} = 16,533,710 \text{ lbs}$$

$$(3,152,000)$$

16,400 lbs

Check at
down

CUPRI-NICKEL

Scrap Return Calculations

14.8764	14.5789	14.1415
<u>14.5789</u>	<u>14.1415</u>	<u>7.0708</u>
.2975	.4374	21.2123
.1488	.2187	<u>20.1516</u>
<u>.4463</u>	<u>.6561</u>	.10607
		.35357
		<u>.70714</u>

20.1516	19.7486	
<u>19.7486</u>	<u>16.7863</u>	16.7863
.4030	2.9623	<u>16.1148</u>
.1343	.9874	.6715
<u>.2686</u>	<u>1.9748</u>	.2238
		<u>.4476</u>

11.8318	5.7976	2.4847
<u>8.2823</u>	<u>5.5077</u>	<u>2.3605</u>
3.5495	.2899	.1242
1.1832	.0966	.0414
<u>2.3664</u>	<u>.1932</u>	<u>.0828</u>

10.1635		6.7748
3.3878		<u>6</u>
<u>6.7756</u>	Check	<u>6.7754</u>

Check - Output	Coins		
Coin Insured	Power	2.3605	7.8682
	Phil	<u>5.5077</u>	<u>4.2830</u> - (led 5000)
		7.8682	<u>12.1512</u>

~~New Feed (Theoret)~~
New Feed (Counting Phil (in Scrap))

14.8764
<u>6.7754</u>
8.1010
<u>4.0505</u>
12.1515

3/2 adjust

Check
Power

$$\begin{array}{rcl}
 10\phi & \text{Clad} & .0136 \\
 & \text{Core} & .0270 \\
 & & \hline
 & & .0406
 \end{array}
 \quad \text{---} \quad .33498$$

$$\begin{array}{rcl}
 25\phi & \text{Clad} & .0178 \\
 & & .0357 \\
 & & \hline
 & & .535
 \end{array}
 \quad \text{---} \quad .33271$$

$$\begin{array}{rcl}
 50\phi & .0228 \\
 & .0456 \\
 & \hline
 & .0684
 \end{array}
 \quad \text{---} \quad .33333$$

$$\begin{array}{rcl}
 1\# & .0296 \\
 & .0593 \\
 & \hline
 & .0889
 \end{array}
 \quad \text{---} \quad .33291$$

Clad
Material

Pounds Cupro-
Nickel

10φ	.335 X .005 X 800,000,000	=	1,340,000
25φ	.333 X .0125 X 400,000,000	=	1,665,000
50φ	.333 X .025 X 200,000,000	=	1,665,000
1#	.333 X .05 X 100,000,000	=	1,665,000
12 1/2 φ	.333 X .008 X 600,000,000	=	1,598,400
			<u>7,933,400 lbs</u>

Annual
Requirement

14,100,000

Cold Chassis Calculations
Finished Coins (Tons/Shift)

10¢	$\frac{160 \times 10^6 \times .005}{2,000 \times 480}$	=	0.8333	$\times 1.5038$ Feed 1.2531
5¢	$\frac{1.20 \times 10^6 \times .00625}{2,000 \times 480}$	=	0.7813	1.1749
25¢	$\frac{80 \times 10^6 \times .0125}{2,000 \times 480}$	=	$\frac{1.0417}{0.8333}$	1.5665
50¢	$\frac{40 \times 10^6 \times .025}{2,000 \times 480}$	=	$\frac{1.0417}{0.8333}$	1.5665
1\$	$\frac{40 \times 10^6 \times .050}{2,000 \times 480}$	=	2.0833	3.1329

Factor	% Loss	Factor
Finished Coin	0	1.0000
Coining	5	1.0526
Blanking	30	1.5038

Clad Cynage
Saver Severe Calculations
+ Blanking

Feed	Blank Scrap	Blank Coin Scrap	Coin
104	1.2531	0.0439	0.8333
Blank Coin	1.1749	0.8224	0.7813
254	1.5665	1.0965	1.0417
504	1.5665	1.0965	1.0417
14	3.1329	2.1930	2.0833
	8.6939	6.0856	5.7813
	2.6083	0.3043	
	2.6082	0.3043	5.7813

Check 7 ml

Feed X.30 Blank Scrap

Blank Coin Scrap

Coin

8712
043960

Blanking Presses Calculations

15" Width Strip

1980 Requirement

250 Strips/min
75% Efficiency

1¢

$$6,780,000,000 \times 1.053 =$$

~~7.85~~ 8.27

$$20 \times 250 \times 60 \times 8 \times 480 \times .75$$

(864,000,000)

~~at 34~~

5¢

$$\frac{450 \times 10^6}{18 \times 250 \times 60 \times 8 \times 480 \times .75}$$

(43,200,000)

$$\frac{777 \times 10^6}{160 \times 10^6}$$

10¢

$$\frac{21 \times [907.2 \times 10^6]}{16 \times [691.2 \times 10^6]}$$

25¢

$$\frac{80 \times 10^6}{16 \times [691.2 \times 10^6]}$$

50¢

$$\frac{40 \times 10^6}{13 \times [561.6 \times 10^6]}$$

\$1

$$\frac{40 \times 10^6}{10 \times [472 \times 10^6]}$$

Other Costs

$$\frac{120 \times 10^6}{20 \times [864 \times 10^6]}$$

Use 11

9

Takes 11.1 presses to blank 1¢ strip as it comes thru strip mills. Should have at least one spare

~~0.58~~ 0.61

~~0.18~~ 0.19

~~0.12~~ 0.13

~~0.07~~ 0.07

~~0.09~~ 0.10

~~0.14~~ 0.15

~~9.03~~

~~49.52~~

70

12

Bleeding Presses

Future Requirement

Requires 14.7 presses
to process 14 strip
to note it under this
strip roller. To avoid
with builder least
one space.

$$1 \text{¢} \quad \frac{9000 \times 10^6 \times 1.053}{20 \times 250 \times 60 \times 8 \times 480 \times .75}$$

$$[43,200,000]$$

$$864 \times 10^6$$

1.3

10.42 10.97

$$5 \text{¢} \quad \frac{1500 \times 10^6}{1.8 \times []}$$

$$777.6 \times 10^6$$

1.93 2.03

$$10 \text{¢} \quad \frac{160 \times 10^6}{21 \times []}$$

$$907.2 \times 10^6$$

0.18 0.19

$$25 \text{¢} \quad \frac{80 \times 10^6}{1.0 \times []}$$

$$691.2 \times 10^6$$

0.12 0.13

$$50 \text{¢} \quad \frac{40 \times 10^6}{13 \times []}$$

$$561.6 \times 10^6$$

0.07 0.07

$$1 \text{¢} \quad \frac{40 \times 10^6}{10 \times []}$$

$$432 \times 10^6$$

0.09 0.07

Other
Cases

$$\frac{120 \times 10^6}{20 \times []}$$

$$864 \times 10^6$$

0.14 0.14

12.95 13.62

Use 16

Use 13

Use 15

Blank Storage

Plan on following method of operation

Cu. Yd.	Cu. Yd. ^{Shifts}	
98.5	261.5	262.5
		Repet 261.5
		Repet 98.5
		360.0
		<u>2</u>
		720 ✓

Storage Requirement

98.5 shifts of 1¢

or
261.5 shifts of 5¢

$$1¢ \quad 98.5 \times 11.65 \times 8 \times \frac{523}{720} \times \frac{2}{3} = 4456 \text{ tons}$$

$$5¢ \quad 261.5 \times 8.28 \times 8 \times \frac{197}{720} \times \frac{2}{3} = 3160 \text{ tons}$$

$$\begin{array}{r} 4,456 \\ 2,000 \\ \hline 8,912,000 \end{array}$$

$$1¢ \quad 66 \times 11.65 \times \frac{523}{720} \times 8$$

AE

Page 11 A
2 —

Block Storage - 15 Days of 14 Blocks
(AA 15.7 Billion coins/year est.)

$$\frac{13,920,000,000}{.95 \times 240 \times 145.8} \times 15 = 34,992$$

$$397805 \times 15 = 5,967,075 \text{ lbs}$$

4 Weeks

11/2/73

NEW MINT CRITERIA REVIEW

1. Design Concept - okay
2. Mission
 - Initial 3 shifts - 10.5 B
 - Ultimate " 15.7 B } okay
3. Production Parameters
 - a. okay
 - b. okay
 - c. okay
 - d. okay
 - e. okay
 - f. Strip Preparation
 - 13,520,000,000 14 pieces
 - 2,250,000,000 5d. Coin
 - 5,000,000 lbs of copper-nickel for Philadelphia

Black Anneling Cleaning Line - ⁴⁸⁰ Shifts per Year

Now
~~480 Shifts~~
Now

$$1¢ \quad \frac{8.7723 \times \frac{523}{720} \times 2,000}{3,500} = 3.64 \quad 4$$

$$5¢ \quad \frac{2.4847 \times \frac{197}{720} \times 2,000}{2,500} = 0.54 \quad 1$$

Cld Coins

$$\frac{6.0856}{8} \times \frac{2,000}{3,500} = 0.44 \quad 5$$

+ 1 spare 1

Use 6

Future

$$1¢ \quad \frac{11.6446 \times \frac{523}{720} \times 2,000}{3,500} = 4.83 \quad 5$$

$$5¢ \quad \frac{8.2823 \times \frac{197}{720} \times 2,000}{2,500} = 1.81 \quad 3$$

Cld Coins

Same as now = 0.44

Total

Use 8

Upsetting Mills

Now

$$\frac{1\#}{6,780 \times 10^6 \times 1.053} = \frac{4.42}{4.65} \quad 6$$

$$400,000 \times 8 \times 480$$

$$(1,536 \times 10^6)$$

$$\frac{5\#}{4,500 \times 10^6 \times 1.053} = 0.52 \quad 1$$

$$240,000 \times 8 \times 480$$

$$(3840)$$

$$\frac{10\#}{760 \times 10^6 \times 1.053} = 0.14$$

$$310,000 \times 8 \times 480$$

$$(3840)$$

$$\frac{25\#}{80 \times 10^6 \times 1.053} = 0.15$$

$$150,000 \times 8 \times 480$$

$$(576 \times 10^6)$$

$$\frac{30\#}{40 \times 10^6 \times 1.053} = 0.09 \quad 0 \quad 1$$

$$120,000 \times 8 \times 480$$

$$460.8 \times 10^6$$

$$\frac{1\#}{40 \times 10^6 \times 1.053} = 0.12 \quad 1 \text{ Span}$$

$$90,000 \times 8 \times 480$$

$$345.6 \times 10^6$$

Order
costs

$$\frac{120 \times 10^6 \times 1.053}{200,000 \times 8 \times 480} = 0.17$$

$$768 \times 10^6$$

$$5.84$$

Use
9

Upsetting Mills

Future
(1.3274)

$$14 \quad 4.65 \times \frac{9}{6.78} = 6.17 \quad 8$$

(3.333)

$$54 \quad 0.52 \times \frac{1.5}{4.5} = 1.73 \quad 2$$

$$104 \quad \text{Same as Now} = 0.14$$

$$254 \quad " = 0.15$$

$$504 \quad " = 0.09 \quad 0.67 \quad 1$$

$$\$/ \quad " = 0.12$$

$$\text{Other Curr} \quad " = 0.17$$

1 gram

12

Corn Presses

Now

$$1¢ \quad \frac{6,780 \times 10^6}{4 \times 135 \times 60 \times 8 \times 480 \times \frac{4}{5} \times .95} = 71.7 \quad 72$$

$$\frac{94,556,160}{6}$$

$$5¢ \quad \frac{450 \times 10^6}{4 \times 135 \times 60 \times 8 \times 480 \times \frac{4}{5} \times .95} = 4.8 \quad 5$$

$$10¢ \quad \frac{160 \times 10^6}{4 \times 135 \times 60 \times 8 \times 480 \times \frac{4}{5} \times .95} = 1.69 \quad 2$$

$$25¢ \quad \frac{80 \times 10^6}{2 \times 135 \times 60 \times 8 \times 480 \times \frac{4}{5} \times .95} = 1.69$$

$$50¢ \quad \frac{40 \times 10^6}{2 \times [\quad]} = 0.85$$

$$\$1 \quad \frac{20 \times 10^6}{2 \times [\quad]} = 0.85$$

$$\text{Other Corn} \quad \frac{120 \times 10^6}{2 \times [\quad]} = 2.54$$

$$84.12 \quad 85$$

Interest
(1.3274)

$$1¢ \quad \frac{71.7 \times \frac{1}{9}}{(3.3333)} = 95.17 \quad 96$$

$$5¢ \quad \frac{1}{4.5} \times 4.8 = 16.00 \quad 16$$

$$10¢ \quad = 1.69 \quad 2$$

$$25¢ \quad = 1.69$$

$$50¢ \quad = 0.85 \quad 6$$

$$\$1 \quad = 0.85$$

$$\text{Other Corn} \quad = 2.54$$

$$118.79 \quad 120$$

Country Machinery

1-1429

Now

1¢	$\frac{6750 \times 10^6}{100,000 \times 8 \times 480 \times .875} \times 2$	=	40.35 35.31	42 40 36
5¢	$\frac{450 \times 10^6}{80,000 \times 8 \times 480 \times .875} \times 2$	=	3.35 2.93	4
10¢	$\frac{160 \times 10^6}{60,000 \times 8 \times 480 \times .875} \times 2$	=	1.59 1.39	2
25¢	$\frac{80 \times 10^6}{60,000 \times 8 \times 480 \times .875} \times 2$	=	0.80 0.70	
50¢	$\frac{40 \times 10^6}{60,000 \times 8 \times 480 \times .875} \times 2$	=	0.40 0.35	4
\$1	$\frac{20 \times 10^6}{30,000 \times 8 \times 480 \times .875} \times 2$	=	0.80 0.70 0.89 0.78	
Other Com	$\frac{120 \times 10^6}{80,000 \times 8 \times 480} \times 2$	=	48.18	46 52 8 54 58 60

Antique (1.3274)

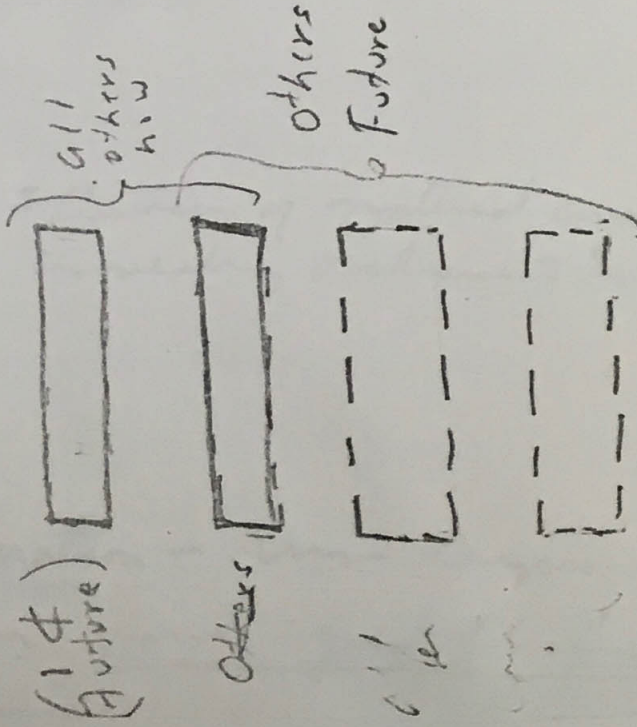
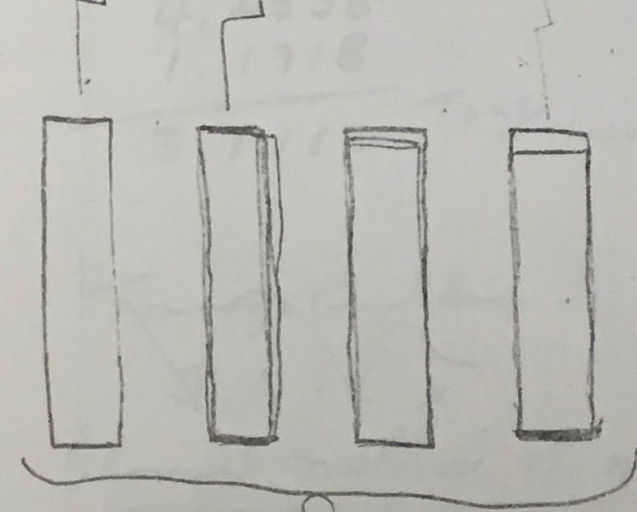
1¢	$\frac{40.35}{35.31} \times \frac{1}{6.78}$	=	53.56 46.87	4/8 56
5¢	$\frac{3.35}{2.93} \times \frac{1}{4.5}$	=	11.17 9.77	12
10¢		=	1.59 1.39	2
25¢		=	0.80	
50¢		=	0.45	4
\$1		=	0.80	
Other Com		=	0.89	7¢ 10¢ 12¢

Now

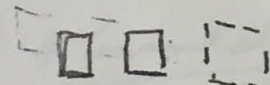
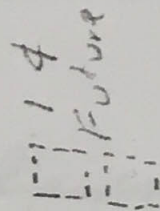
1. $6 + 2$
2. $6 + 2$

3. $6 + 2$

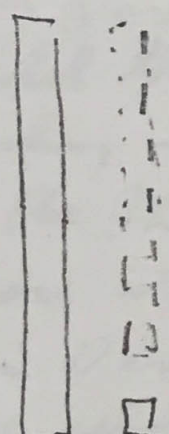
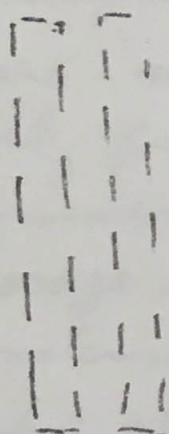
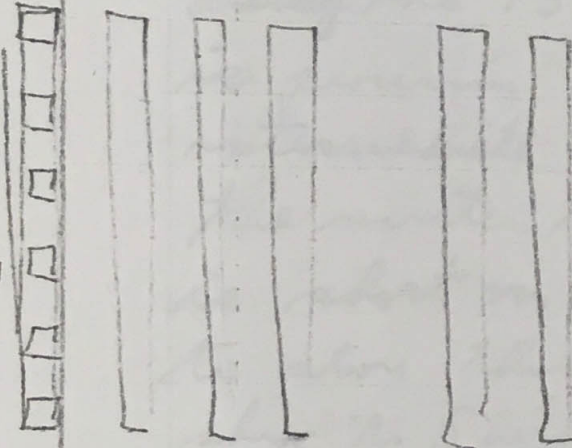
4. $6 + 2$



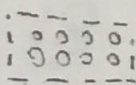
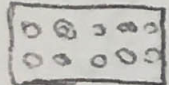
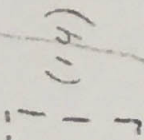
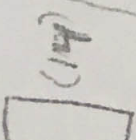
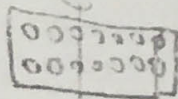
Upset



Coin



Count



42

14

(14)

6/1

Bell Annealing & Coil Storage (Material)

To provide Philadelphia with 9,000,000 lbs annually of cupro-nickel for use in the clad mill. Denver will have to produce 4.2830 tons/hour of said material for Philadelphia during the 131 1/3 shifts ^(197 shifts M+R) per year that Denver is producing cupro-nickel thru the intermediate mill, finishing mill and the slitter/trimmer. As Philadelphia is short on storage space it will be necessary to store this material in Denver and ship to Philadelphia at a relatively uniform rate.

Uniform rate of shipment & annealing ton
hour

$$4.2830 \times \frac{131.33}{480} = \frac{56248639}{480} = 11718.25$$

4.2830	
1.1718	
3.1112	Tons/Hour = Building of material awaiting annealing & shipment to Phil

~~Tonnage building~~
3.1112 x

Planned method of operation — run cupro-nickel about quarter in four equal blocks per year

$$\frac{131.33}{4} = 33 \text{ shifts}$$

Page 19 of -

Bell Annealing + Coil Storage

Total Buildup of material

$$\frac{3,1112 \times 33 \times 8 \times 2,000}{5,250 \frac{\text{lbs}}{15" \text{ coil}}} =$$

$$3,1112 \times 33 \times 8 = 821,3568 \text{ tons}$$

As this is based on uniform processing (which
and shipment it is prudent to add 50% to this
figure to allow for anomalies in production &
shipment

$$821 + 821.3568 \times 1.5 = \underline{\underline{1,232 \text{ tons}}}$$

Coils $\frac{1,232 \times 2,000}{5,250 \frac{\text{lbs}}{15" \text{ coil}}} = 469 + \text{avg } \underline{\underline{470 \text{ coils}}}$

Storage

Coils are 15" wide x ~40" O.D

$$\frac{5}{4} \times \frac{40}{12} = 4.166 \text{ sq. ft. coil} \times 1.5 = 6 \text{ sq. ft. per coil}$$

Storage requirement

$$\begin{array}{r} 470 \\ \times 6 \\ \hline 2820 \end{array} \text{ sq. feet @ 2 coils}$$

or ~1500 sq. ft. @ 2 coils

Coiling requirement

$$1.2 \frac{\text{tons}}{\text{hr}} \times 1.5 = \underline{\underline{1.8 \text{ tons/hr}}}$$

(non-uniform processing factor)

~~Aluminum Strip Production~~

April, 1974

Aluminum Strip Production Calculations

Requirement - Produce strip for 13.5 Billion
1¢ Coins. per year

Estimated Process Losses			
Process	Source Definition	% Loss	# Material
Finished Coin	None	0	1,000000
Coining	Unacceptable coins	5	1,05263
Blanking	Remaining Web	30	1,52376
Slit + Trim	Edges + fines	5	1,58290
Cropping	End matl from ast. web	1	1,59889
Casting	Bad castings, spilled matl.	3	1,64834
Melting	Furnace	2	1,68198

Weight of Aluminum 1¢ Blank

Thickness - 0.050 inches

Diameter - 0.740 inches

$$\text{Volume} = \pi (.050) \left(\frac{.740}{2} \right)^2 = .02150425 \text{ in}^3$$

For alloy 3003 weight is .099 lb/in³.

$$\text{Weight} = .099 (.021504) = .0021289 \text{ lbs}$$

$$\text{Coins per lb} = \frac{1}{.0021289} = \underline{469.726}$$

Strip Production

$$\frac{13,500,000,000}{469.726} \times 1.68198 = \underline{48,340,323 \text{ lbs}}$$

At 16 million lbs per year now

$$\text{Hunter Casting Machine} \quad \frac{48}{16} = 3 \text{ casting lines}$$

Bureau of West Long-Range Planning File

Copies of Congressional Authorization & Regulation Book must follow

Frank Rhea

94TH CONGRESS }
1st Session }

HOUSE OF REPRESENTATIVES

REPORT
No. 94-279

CONSTRUCTION OF MINT BUILDINGS

JUNE 11, 1975.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. JOYCE of Alabama, from the Committee on Public Works and Transportation, submitted the following

REPORT

[To accompany H.R. 5620]

The Committee on Public Works and Transportation, to whom was referred the bill (H.R. 5620) to amend the Act of August 20, 1963, as amended, relating to the construction of mint buildings, having considered the same, report favorably thereon with amendments and recommend that the bill as amended do pass.

The amendments are as follows:

On the first page, line 2, strike out "July" and insert in lieu thereof "October".

On page 2, immediately following line 6, insert the following:

SEC. 2. No part of any of the increased authorization contained in the amendment made by the first section of this Act shall be available for expenditure except for a project which will be accomplished by advertised competitive bidding through a single lump sum construction contract for each separate building.

The Act of August 20, 1963, as amended, (21 U.S.C. 291-4) authorized the Secretary of the Treasury, acting through the Administrator of General Services to acquire sites for, and to construct and equip, such buildings as may be necessary in connection with the operations of the Bureau of the Mint. H.R. 5620, as reported, would amend section 4 of that Act to increase from \$45 million to \$105 million the amount authorized to be appropriated for the building of new mints and would extend the time during which moneys could be appropriated from July 1, 1973 to October 1, 1983. This increase, together with the balance remaining for that previously authorized, will permit construction of a new mint at Denver, Colorado to replace the existing Denver mint.

The Nation's coinage demand, which is currently 9 billion pieces a year, is supplied almost entirely by the mints at Philadelphia and

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Denver. The coinage demand is expected to rise to 18 billion pieces a year by 1980 and to 40 billion pieces by 1988. To satisfy the Nation's rapidly growing coinage needs it is essential to replace the outmoded facility at Denver, whose current capacity is 4.5 billion pieces a year, with a new and modern facility which would have an ultimate production capacity of over 25 billion pieces a year.

Construction of a new mint at Denver has been authorized under the general provisions of the Act of August 20, 1963. In 1971 Congress appropriated \$1.5 million for the acquisition of a construction site (Public Law 92-49) and in 1974 appropriated an additional \$2 million to enable the mint to enter into the contract for architectural and engineering services connected with the construction and equipping of the new facility. Primarily, funding requirements for a new coinage facility at Denver are estimated to be \$65 million. The increase in authorization provided under the bill together with amounts previously made available, would enable the mint to construct the new coinage facility.

A letter from the General Counsel of the Department of the Treasury supporting enactment of H.R. 5620 follows:

THE GENERAL COUNSEL OF THE TREASURY,
Washington, D.C., April 29, 1975.

Hon. ROBERT E. JONES,
Chairman, Committee on Public Works and Transportation, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: Reference is made to your request for the views of this Department on H.R. 5620, "To amend the Act of August 20, 1963, as amended, relating to the construction of mint buildings."

The Act of August 20, 1963, as amended (31 U.S.C. 291-4), authorized the Secretary of the Treasury, acting through the Administrator of General Services, to acquire sites for, and to construct and equip, such buildings as may be necessary in connection with the operations of the Bureau of the Mint. For the funding of these objectives, section 4 of that Act authorized the appropriation of \$45 million for the fiscal years beginning July 1, 1963 and ending June 30, 1973. The bill would amend section 4 of the Act to increase from \$45 million to \$105 million the total amount authorized to be appropriated for constructing mint facilities since 1963 and would extend the time during which monies may be appropriated from July 1, 1973 to the fiscal year ending before July 1, 1983.

The bill would permit construction of a new mint in the City of Denver in replacement of the existing Denver mint. Of the \$45 million authorized for funding of mint construction by the Act of August 20, 1963, approximately \$10 million was expended to construct and equip a new mint in Philadelphia. By increasing the authorization to \$105 million for mint construction, the bill would enable the Department, subject to annual appropriations, to expend up to \$65 million for the construction and equipping of a new coinage facility at Denver.

Construction of the new mint at Denver has been approved by the Congress, which in the Act of July 2, 1971, Public Law 92-49, appropriated \$1.5 million for the acquisition of a construction site, and in

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the Act of July 13, 1972, Public Law 92-351, appropriated an additional \$2 million for architectural and engineering services. The \$3.5 million already appropriated by Congress under the authority of the 1963 Act is included in the \$65 million total funding which would be authorized by the bill for constructing a new mint at Denver. Thus, in terms of actual funding, the bill would authorize the appropriation of approximately \$81.5 million.

Replacing the existing Denver mint with a new facility is essential to assure production of coins in the quantity the nation will need by the 1980's and beyond. It is estimated by the Department and the Federal Reserve that by fiscal year 1980, the national coinage demand will rise to the neighborhood of 15 billion coins per year from the current annual demand of 12 billion coins. The demand is expected to increase further to 30 billion pieces by 1985.

To be able to satisfy the anticipated increase in coinage demand, the Denver mint, which has a present production capacity of about 5 billion coins a year, must be replaced with a new and modern facility by no later than 1980. Once completed, the new mint will have an initial production capacity of 10.5 billion coins per year, which could ultimately be expanded to over 25 billion coins annually. Together with the other mint facilities, which have a combined capacity of producing approximately 11 billion coins a year, the new Denver mint will represent an assurance that our country's coinage needs will be fully supplied during the years ahead.

The Department fully supports enactment of the proposed bill. We recommend, however, that the date, July 1, 1982, in the bill be changed to October 1, 1982, thereby authorizing appropriations for construction to the end of fiscal year 1982. Such change in the bill would bring it into conformity with section 301 of the Congressional Budget Act of 1974, Public Law 93-344, which provides that beginning October 1, 1976, each fiscal year shall commence on October 1 of each year and end on September 30 of the following year.

The Department has been advised by the Office of Management and Budget that there is no objection from the standpoint of the Administration's program to the submission of this report to your Committee.

Sincerely yours,

RICHARD R. ALBRECHT,
General Counsel

COMPLIANCE WITH CLAUSE 2(1) OF RULE XI OF THE RULES OF THE
HOUSE OF REPRESENTATIVES

(1) With reference to Clause 2(1)(3)(A) of Rule XI of the Rules of the House of Representatives, no separate hearings were held on the subject matter of this legislation by the Subcommittee on Investigations and Review, however, the Subcommittee on Public Building and Grounds held hearings on this subject matter which resulted in the reported bill.

(2) With respect to Clause 2(1)(3)(B) of Rule XI of the Rules of the House of Representatives, H.R. 5620, as reported, does not provide new budget authority. However, since H.R. 5620, as reported, provides authorization for appropriations which will lead to budget

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authority, a statement pursuant to section 308(a) of the Congressional Budget Act follows:

(a) With respect to section 308(a)(1)(B), it is anticipated that budget outlays for the period of five fiscal years beginning with fiscal year 1975 is as follows:

Fiscal year 1975	None
Fiscal year 1976	None
July 1, 1976-Sept. 30, 1976	None
Fiscal year 1977	\$29,150,000
Fiscal year 1978	26,000,000
Fiscal year 1979	12,700,000

(b) With reference to section 308(a)(1)(C), the bill provides no financial assistance to State and local governments.

(3) With respect to Clause 2(1)(3)(C) of Rule XI of the Rules of the House of Representatives, the Committee has not received an estimate and comparison prepared by the Director of the Congressional Budget Office under section 405 of the Congressional Budget Act.

(4) With respect to Clause 3(1)(B)(D) of Rule XI of the Rules of the House of Representatives, the Committee has not received a report from the Committee on Government Operations pertaining to the subject matter.

(5) With reference to Clause 3(1)(4) of Rule XI of the Rules of the House of Representatives, the following information is provided:

The effect of carrying out H.R. 5620, as reported, should be minimal with respect to prices and cost. The cost of this much needed facility will increase significantly if delayed due to inflation. In addition, this facility will allow the Mint to meet the tremendous demands for additional coinage of 1980 which in turn would increase revenues to the general fund of the Treasury in the form of net seigniorage—which is the profit our Government makes on coinage. In fiscal year 1976, the Department expects to deposit some \$672 million in the form of net seigniorage in the general fund.

COST OF THE LEGISLATION

In accordance with rule XIII(7) of the Rules of the House of Representatives, the estimated costs to the United States which would be incurred in carrying out H.R. 5620, as reported, in fiscal year 1975 and each of the following five years are set forth herein.

Fiscal year 1975	None
Fiscal year 1976	None
July 1, 1976-Sept. 30, 1976	None
Fiscal year 1977	\$29,150,000
Fiscal year 1978	26,000,000
Fiscal year 1979	12,700,000
Fiscal year 1980	None

Total 82,000,000

During fiscal years 1975 thru 1977, an additional \$4,900,000 will be expended. However, this amount will come from previous authorizations.

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Vote

The committee ordered the bill reported by voice vote.

CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with clause 3 of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

SECTION 4 OF THE ACT OF AUGUST 20, 1963

Sec. 4. There is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, for each fiscal year which begins after June 30, 1963, and ends before [July 1, 1978] *October 1, 1983*, such sums as may be necessary to carry out this Act, except that the aggregate of sums appropriated under this section shall not exceed [~~\$45,000,000~~] *\$105,000,000*. Sums appropriated to the Department of the Treasury for the [~~purposes~~] *purpose* of this Act may be available for transfer to this *Administrator* of General Services to remain available until expended.

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(3) by adding at the end thereof the following new clause:

"(9) training for students of both sexes for occupations dominated by the other sex."

(b) Section 123 (a) (6) of such Act is amended—

(1) by inserting immediately after subclause (D) the following new subclause:

"(E) due consideration will be given to the need to encourage the training of students of both sexes for occupations traditionally dominated by the other sex,";

(2) by redesignating subclauses (E), (F), and (G), as subclauses (F), (G), and (H), respectively; and

(3) by striking out "and (D)" in subclause (F) (as redesignated by paragraph (2)) and inserting in lieu thereof "(D), and (E)".

(c) Section 132 of such Act is amended—

(1) by striking out the word "and" at the end of clause (5);

(2) by redesignating clause (6) as clause (7); and

(3) by inserting after clause (5) the following new clause:

"(6) experimental, developmental, and pilot programs designed to encourage the participation of students of both sexes in fields traditionally dominated by the other sex and to encourage the elimination of sex bias in vocational education and";

(d) Section 143 (a) (2) of such Act is amended by inserting after the word "broadened" a comma and the following: "particularly by eliminating barriers based on sex,".

(e) Section 161 (b) (1) is amended—

(1) by striking out subclause (E); and

(2) by inserting in lieu thereof a new subclause:

"(E) are designed for all persons, male and female, who may have use for skills relating to the establishment and the maintenance of the home, and";

(f) (1) Section 191 (c) (1) (A) of such Act is amended by inserting after the word "fields" the following: "and for increasing awareness of the changing role of women in the world of work".

(2) Section 191 (b) (2) of such Act is amended by inserting immediately before the word "designed" the following: "free of sex biases and".

WOMEN'S EQUAL EDUCATIONAL OPPORTUNITY ACT—SECTION-BY-SECTION ANALYSIS

Sec. 2. Amends Sec. 403 of the Elementary and Secondary Education Act (Title IV, Consolidation of Certain Education Programs) to require that states spend at least 5 percent of the funds received for Libraries and Learning Resources, Educational Innovation and Support on materials, programs or projects designed to eliminate sex biases in education.

Requires that federal funds made available for library and learning resources be used on a priority basis and where possible in the acquisition of non-sex-biased materials and that state plans include sufficient criteria to preclude sex bias in such acquisitions.

Requires that federal funds made available for education innovation and support be used in a non-sex-biased manner designed to promote equal educational opportunity for women.

Amends Sec. 421 of ESEA (Libraries and Learning Resources) to require that counseling and guidance programs for students give special consideration to the elimination of sex-role stereotyping.

Amends Sec. 431 of ESEA (Educational Innovation and Support) to make eligible for funding:

(1) demonstration projects designed to promote new approaches to eliminate sex bias in education, specifically including public information activities and physical education and sports activities, and

(2) state and local education agency leadership programs designed to increase the pro-

portion of women serving in leadership capacities.

NOTE.—Title IV of the Education Amendments of 1974 will be implemented only if certain requirements are met in the appropriation process. Therefore, Sec. 2 includes the following amendments to the categorical programs consolidated under Title IV:

Amends Sec. 203 of the Elementary and Secondary Education Act (ESEA) requiring that state plans for Title II school library and textbook grants setting forth criteria to be used in the selection of library resources, textbooks and other instructional materials provided under Title II include those designed to preclude sex bias. Redesignates existing subsections under Sec. 203 (a) and adds a new subsection (7) requiring assurances that Title II funds be used on a priority basis and where possible in the acquisition of non-sex-biased library resources, textbooks and other instructional materials.

Amends Sec. 303 of ESEA to allow funds under Title III (Supplementary Educational Centers and Service) to be used for demonstration projects promoting new approaches to expand educational opportunities for women, including comprehensive physical education programs and sports activities for women. Amends Sec. 306 by adding a new subsection requiring that at least 15% of funds granted in any fiscal year under Sec. 306 for special programs and projects be used to meet the special educational needs of women.

Amends Sec. 503 of ESEA (grants to state Departments of Education under Title V—Strengthening State and Local Educational Agencies) by adding a new Sec. 13 allowing funds apportioned to the states to be used for programs promoting equal educational opportunities for women the elimination, reduction, or prevention of sex discrimination in education and public information activities to increase the awareness of educational personnel and the public concerning problems relating to sex discrimination. Amends Sec. 505 of ESEA (Special Project Grants to States under Title V) requiring that in using funds reserved for special projects to develop state leadership in education priority consideration be given to projects designed to increase the proportion of women in leadership positions and to promote equal educational opportunities for women. Amends Sec. 521 (Grants to Local Educational Agencies) to give priority in the awarding of grants to local education agencies interested in increasing the proportion of women serving in leadership positions, and promoting equal educational opportunities for women.

Sec. 3 Amends Sec. 404 of the General Education Provisions Act to include in the use of funds for the improvement of post-secondary education, activities designed to improve the status of women in post-secondary education. Amends Sec. 404 (a) (6) to allow funds for the introduction of institutional reforms to be used for the creation of innovative administrative and educational practices which respond to the special needs of persons who have or have had responsibilities of caring for dependents. Amends Sec. 405 (b) (2) to specify programs to meet the needs of women as one of the methods by which the National Institute of Education shall seek to improve education.

Sec. 4 Amends Sec. 105 of the Higher Education Act relating to state plans for community service and continuing education programs by requiring that consideration be given to the capability and willingness of institutions of higher education to provide effective community service programs designed to improve the status of women. Amends Sec. 531 (Education Professions Development) to expend the uses of Part D funds to include programs designed to increase the proportion of women serving as school administrators, and programs to train teachers and other personnel to avoid sex

biases. Amends Sec. 541 by expanding criteria for grants for Training Programs for Higher Education Personnel to include those improving equal educational opportunities for women.

Amends Sec. 552 expanding the criteria for making leadership development awards to include encouraging the participation of women in vocational education leadership. Amends Sec. 553 to expand the uses of exchange programs grants, institutes an inservice education for vocational education personnel to include programs emphasizing the preparation and participation of men and women in areas of vocational education teaching and administration traditionally dominated by the other sex.

Sec. 5 Amends Sec. 191 of the Vocational Education Act of 1963 by expanding the eligible purposes of grants for state vocational education programs to include the training of students of both sexes for occupations dominated by the other sex. Redesignates existing subsections under Sec. 123 and adds a new subsection (E) requiring that state plans consider the need to ensure the training of students for occupations traditionally dominated by one sex. Amends Sec. 132 by expanding the uses of Part C (Research and Training in Vocational Education) funds to include programs to encourage students of both sexes to participate in fields traditionally dominated by the other sex and to ensure the elimination of sex bias in vocational education.

Amends Sec. 143 to expand the uses of Part D (Exemplary Programs and Projects Funds) to include programs to broaden occupational aspirations and opportunities by eliminating barriers based on sex. Amends Sec. 161 relating to Consumer and Homemaking Education, by requiring that state plans include provisions for all persons who have use for skills relating to the establishment and maintenance of the home, rather than just those who are entering the work of the home. Amends Sec. 191 by expanding the uses of Part I (Curriculum Development in Vocational and Technical Education) funds to include the development and dissemination of vocational education materials which increase awareness of the changing role of women in the world of work and also requires that curriculum materials developed or disseminated under Part I be free of sex biases.

By Mr. HASKELL (for himself and Mr. GARY W. HART):

S. 1339. A bill to amend the act of August 20, 1963, as amended, relating to the construction of mint buildings. Referred to the Committee on Banking, Housing and Urban Affairs.

Mr. HASKELL. Mr. President, the bill I am introducing today would authorize construction of a new mint in Denver, Colo. Similar legislation was passed by the Senate June 27, 1973, but, unfortunately, was not acted upon by the House of Representatives.

The new mint facility is necessary to keep pace with the rapidly increasing need for coins in our economy. At the present time there are only two mints in the entire country, one at Philadelphia, Pa., and one at Denver, Colo. These two mints are now coining about 9 billion coins per year. Estimates indicate we will need double that amount of coins—about 18 billion pieces—by 1980.

The old mint facility in Denver, which began minting coins in 1906, is a historic building and is the most popular tourist attraction in Denver, handling some 4 million tourists a year. I wish it were

possible to expand or repair the existing mint in a way that would meet our expanding need for coins. But it is not. The building itself will be preserved for historic purposes.

The new mint will have a capacity of 25 billion pieces per year which is a 500-percent increase over the existing facility. The Congress has already authorized and appropriated funds to plan for the new mint and to acquire the property where the new facility will be located. The new mint will be located in the Park Hill section of Denver.

It should also be noted that the current mint has an excellent record with respect to minority hiring practices, and I feel confident that that record will continue.

Mr. President, I was disappointed the authorizing legislation did not clear both the Senate and the House of Representatives during the 93d Congress. I hope that my colleagues on the Senate Committee on Banking, Housing and Urban Affairs will see fit to act promptly on this legislation. Companion legislation is being introduced in the House of Representatives where it will be referred to the Committee on Public Works. Last Congress the committee acted favorably on the Senate bill. It passed the Senate unanimously. A majority of our colleagues in the House of Representatives voted favorably on it. But due to the parliamentary situation, which required two-thirds of the House to suspend the rules to pass the bill, the 241- to 193-vote in favor of it was 15 votes short of approval.

Mr. President, I ask unanimous consent that the text of the legislation be printed at this point in the Record.

There being no objection, the bill was ordered to be printed in the Record, as follows:

S. 1339

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 2 of the Act of August 20, 1962, as amended (31 U.S.C. 294), is further amended to read as follows:

"SEC. 4. There is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, for each fiscal year which begins after June 30, 1963, and ends before July 1, 1963, such sums as may be necessary to carry out this Act, except that the aggregate of sums appropriated under this section shall not exceed \$105,000,000 (March 1975 price levels). Sums appropriated to the Department of the Treasury for the purpose of this Act may be available for transfer to the Administrator of General Services to remain available until expended."

By Mr. BAYH

S. 1340. A bill to require periodical financial disclosure by officers and certain employees of the Federal Government. Referred to the Committee on Rules and Administration.

OMNIBUS DISCLOSURE ACT OF 1975

Mr. BAYH. Mr. President, I have long been concerned with growing public cynicism and loss of confidence in Government. More than 4 years ago in order to redress this situation, I introduced a bill aimed at establishing a new standard of conduct for public officials, the Omnibus Disclosure Act. This legisla-

tion was an outgrowth of the lessons we learned during the debate over the qualifications of Supreme Court nominees in 1969 and 1970. The need for this bill has not diminished, Mr. President, indeed, the revelations of Watergate have given even more impetus for its enactment. In light of this need, Mr. President, today I am introducing the Omnibus Disclosure Act of 1975.

In the not so distant past, we saw banner headlines day after day, week after week, which furnished disclosures undermining the already shaky faith of our citizens in their government in general, and which eroded public confidence in the integrity of public officials and the electoral process in particular. The impact of the Watergate affair and related scandals on public confidence in our political process represents nothing less than a national tragedy.

Unfortunately, as a result, too many Americans believe the tactics and morality of Watergate represent the norm in the political and governmental process. I for one, emphatically believe they do not represent the norm. Most men who seek and serve in high public office are good men, honest men who desire nothing more than to make this a better world for our children and our children's children. But it is clear that when the public has more faith in its garbage collectors than it has in the U.S. Senate, the House of Representatives, or the President, those who seek or who serve in high public office have an obligation to take every step possible to help restore and assure faith in the basic honesty and integrity of our Government, our political process, and our public officials.

I. PAST EFFORTS AT DISCLOSURE REFORM

My concern about the growing loss of confidence in our political system, our Government, and our public officials is not new. I have long believed that the source of all governmental power is in the consent of the governed and, therefore, if the people are supplied with sufficient information about their elected officials and appointees, the people will fashion workable standards of conduct in the voting booth. I am convinced that the most effective means of insuring that public officials are responsive to the highest ethical standards is to make the personal affairs of public officials and those who seek high public office an open book.

That is why, long before anyone ever heard of Watergate—in 1967—I voted for legislation to require Congressmen and candidates for Congress to disclose their assets, liabilities, gifts, and outside income. It was my concern for insuring integrity, basic honesty and sensitivity to conflicts of interest which might tend to undermine public confidence in our system of justice that led me to oppose the nomination of Judge Haynsworth to the Supreme Court in 1963. It was this concern which led me to introduce, in 1970 and again in 1971, a Judicial Disqualification Act and an Omnibus Disclosure Act.

I supported the Senate's efforts in 1973 to amend the Federal Campaign Reform Act to include provisions strengthening existing financial disclosure require-

ments, and was keenly disappointed that these provisions were dropped during conference committee considerations.

While I think many of these initial efforts mark a good beginning, I feel that we must take the opportunity before us to enact more meaningful legislation such as the bill I am introducing today.

II. OMNIBUS DISCLOSURE ACT OF 1975

My bill, Mr. President, provides for uniform personal financial disclosure reports by all employees of the Federal Government, whether in the executive, legislative, or judicial branches, who have an income in excess of \$18,000 per year. If conflicts of interest exist, the public has a right to know, and these disclosure reports—open for public inspection—will provide that knowledge.

Under the provisions of this bill, all Federal employees and officers earning over \$18,000 must file with the Comptroller General of the United States by May 1 of each year, the following information: First, the identity and value of interests in real or personal property worth more than \$500; second, creditors to whom more than \$1,000 is owed and the amount of each such debt; third, dealings in securities and commodities; fourth, transactions in real property; fifth, gifts of more than \$100; sixth, the amount and source of each contribution to defray campaign or office expenses; and seventh, except in the case of a non-incumbent candidate, the identity of each client who pays more than \$1,000 to a law firm with which the individual covered by the act is associated.

III. IMPROVEMENTS OVER EXISTING PRACTICES

At this time it is impossible for the public to gain access to this information. A patchwork of congressional rules, a judicial conference resolution, and an Executive order compose the present financial disclosure laws. None of the disclosure provisions are sufficiently comprehensive in the type of financial information required to be disclosed or in the individuals required to file reports. Furthermore, none of the provisions allow for significant public disclosure of financial interests.

The Federal judiciary is presently subject to a resolution passed by the Judicial Conference of the United States on March 18, 1970. This resolution retreats considerably from the comprehensive public disclosure adopted at the behest of former Chief Justice Warren in June of 1969.

The most recent resolution requires all Federal judges, except Supreme Court Justices, to file a confidential financial disclosure report with a special committee of the Judicial Conference, the conference of their circuit, and the clerk of their court. Each judge must disclose his total income for extra judicial services such as lecturing, teaching, and serving as executor of an estate. He must itemize sources of income and gifts of over \$100. Each judge must also report whether he has knowingly participated in any decisions in which he or any member of his household had a financial interest, or if he has engaged in any transaction involving securities or property of a party

not have the amount of such pension or compensation reduced, or entitlement there-to discontinued, because of increases in monthly social security benefits; to the Committee on Veterans' Affairs.

By Mr. PERKINS (for himself, Mr. DOMINICK V. DANIELS, Mr. HAWKINS, Mrs. MINK, Mr. FORD of Michigan, Mr. MEEDS, Mr. GAYDOS, Mr. LEHMAN, Mr. RISENHOOVER, Mr. SIMON, Mr. ZEPERETTI, Mr. HALL, and Mr. STEED):

H.R. 5610. A bill to amend the Education Amendments of 1974 to delay the effective date of certain amendments to the Act of September 30, 1950 (Public Law 874, 81st Congress), and for other purposes; to the Committee on Education and Labor.

By Mr. RAILSBACK:

H.R. 5611. A bill to make election day a national holiday; to the Committee on Post Office and Civil Service.

By Mr. RAILSBACK (for himself and Mr. MOORE):

H.R. 5612. A bill to amend the Internal Revenue Code of 1954 to raise the estate tax exemption from \$60,000 to \$185,000; to the Committee on Ways and Means.

By Mr. RAILSBACK (for himself, Mr. KASTENMEIER, Mr. COCHRAN, Mr. HARRIS, Mr. HUBBARD, Mr. MINETA, Mr. LOTT, and Mr. ESCH):

H.R. 5613. A bill to regulate lobbying and related activities; jointly to the Committees on the Judiciary, and Standards of Official Conduct.

By Mr. ROGERS:

H.R. 5614. A bill to provide for the conservation and management of fisheries, and for other purposes; to the Committee on Merchant Marine and Fisheries.

By Mr. RUSSO:

H.R. 5615. A bill to retain November 11 as Veterans Day; to the Committee on Post Office and Civil Service.

H.R. 5616. A bill to amend part B of title XVIII of the Social Security Act to broaden the coverage of home health services under the supplementary medical insurance program and remove the 100-visit limitation presently applicable thereto; to amend part A of such title to liberalize the coverage of posthospital home health services thereunder, to amend title XIX of such act to require the inclusion of home health services in a State's medicaid program and to permit payments of housing costs under such a program for elderly persons who would otherwise require nursing home care, to require contributions by adult children toward their parents' nursing and home health care expenses under the medicaid program, to provide expanded Federal funding for congregate housing for the displaced and the elderly, and for other purposes; jointly to the Committees on Ways and Means, and Interstate and Foreign Commerce.

By Mr. St GERMAIN (by request):

H.R. 5617. A bill to provide for Federal regulation of foreign banks establishing, acquiring, operating, or controlling banks, branches, and agencies in the United States, and for other purposes; to the Committee on Banking, Currency and Housing.

H.R. 5618. A bill to expand competition, provide improved consumer services, strengthen the ability of financial institutions to adjust to changing economic conditions, and improve the flows of funds for mortgage credit; to the Committee on Banking, Currency, and Housing.

H.R. 5619. A bill to provide for the uniform application of the tax laws to all financial institutions and a credit for interest from qualifying real property loans; to the Committee on Ways and Means.

By Mrs. SCHROEDER (for herself, Ms. ABZUG, Mr. BREAUX, Mr. EDGAR, Mr. EVANS of Colorado, Mr. HAGEDORN, Mr. HARSHA, Mr. HENDERSON, Mr. HOLLAND, Mr. HOWARD, Mr. HOWE, Mr. JOHNSON of Colorado, Mr. LEVITAS, Mrs. LLOYD of Tennessee, Mr. MCCORMACK, Mr. MINETA, Mr. OBERSTAR, Mr. JAMES V. STANTON, Mr. STUDDS, and Mr. WIRTH):

H.R. 5620. A bill to amend the act of August 20, 1963, as amended, relating to the construction of mint buildings; to the Committee on Public Works and Transportation.

By Mr. SCHULZE (for himself, Mr. BIESTER, Mr. COUGHLIN, Mr. DENT, Mr. EDGAR, Mr. ESHLEMAN, Mr. GREEN, Mr. GOODLING, Mr. HEINZ, Mr. JOHNSON of Pennsylvania, Mr. McDADD, Mr. MOORHEAD of Pennsylvania, Mr. MURTHA, Mr. ROONEY, Mr. SCHNEIDER, Mr. VIGORITO, and Mr. YATTON):

H.R. 5621. A bill to authorize the Secretary of the Interior to establish the Valley Forge National Historical Park in the Commonwealth of Pennsylvania, and for other purposes; to the Committee on Interior and Insular Affairs.

By Mr. SEIBERLING:

H.R. 5622. A bill to provide for the management, protection, and development of the national resource lands, and for other purposes; to the Committee on Interior and Insular Affairs.

By Mr. SIKES (for himself, and Mr. KELLY):

H.R. 5623. A bill to amend section 4182 of the Internal Revenue Code of 1954; to the Committee on Ways and Means.

By Mr. SPENCE:

H.R. 5624. A bill to name a Federal office building to be located in Columbia, S.C., the Strom Thurmond Federal Building; to the Committee on Public Works and Transportation.

By Mr. STAGGERS:

H.R. 5625. A bill to amend the Railroad Retirement Act of 1974 to clarify the eligibility conditions for one type of benefit thereunder; to the Committee on Interstate and Foreign Commerce.

By Mr. STARK (for himself, Mr. LONG of Maryland, Mr. SARBANES, Ms. SPELLMAN, Mr. MOORE, and Mr. DOWNEY):

H.R. 5626. A bill to amend the Bank Holding Company Act of 1956 to make it applicable to alien individuals; to the Committee on Banking, Currency and Housing.

By Mr. STEELMAN:

H.R. 5627. A bill to regulate lobbying and related activities; jointly to the Committees on the Judiciary, and Standards of Official Conduct.

By Mr. STEIGER of Arizona:

H.R. 5628. A bill to amend title 18 of the United States Code to provide an alternative to the exclusionary rule in Federal criminal proceedings; to the Committee on the Judiciary.

By Mr. STEIGER of Wisconsin:

H.R. 5629. A bill to provide for the duty-free entry of binder twine and baler twine made of man-made fibers; to the Committee on Ways and Means.

By Mrs. SULLIVAN:

H.R. 5630. A bill to amend the Federal Boat Safety Act of 1971 in order to increase the Federal Government's share of the costs of State boat safety programs, and to increase the authorization for appropriations for such programs; to the Committee on Merchant Marine and Fisheries.

By Mr. TAYLOR of North Carolina (for himself and Mr. SEBELIUS):

H.R. 5631. A bill to increase the appropriation authorization relating to the volunteers

in the parks program, and for other purposes; to the Committee on Interior and Insular Affairs.

By Mr. THONE:

H.R. 5632. A bill to improve the antitrust laws; jointly to the Committees on the Judiciary, and Interstate and Foreign Commerce.

By Mr. UDALL (for himself, Mr. STEELMAN, Mr. ASHLEY, Mr. AU COIN, Mr. BROWN of California, Mrs. BURKE of California, Mr. DE LUGO, Mr. DOWNEY, Mr. FISHER, Mr. FORD of Michigan, Mr. GUDE, Mr. HARRINGTON, Mr. HECHLER of West Virginia, Miss HOLTZMAN, Mr. KOCH, Mr. MIKVA, Mr. MINETA, Mr. MITCHELL of Maryland, Mr. MOAKLEY, Mr. OBERSTAR, Mr. PATTON of New York, Mr. PREYER, Mr. RANGEL, Mr. SCHEUER, and Mr. WIRTH):

H.R. 5633. A bill to encourage conservation of natural resources to authorize grants to the States for land use programs, to coordinate Federal actions concerning land use, to require land use planning for the public lands, and for other purposes; to the Committee on Interior and Insular Affairs.

By Mr. ULLMAN (for himself, Mr. AU COIN, Mr. DUNCAN of Oregon, and Mr. WEAVER):

H.R. 5634. A bill to authorize the Secretary of Agriculture to reimburse cooperators for work performed which benefits Forest Service programs; to the Committee on Agriculture.

By Mr. ULLMAN (for himself and Mr. MCKAY):

H.R. 5635. A bill to amend the Internal Revenue Code of 1954 to allow Federal income tax returns to be inspected by a common tax auditing agent utilized by the States; to the Committee on Ways and Means.

By Mr. VANIE:

H.R. 5636. A bill to amend the Emergency Unemployment Compensation Act of 1974 to provide emergency unemployment compensation to certain individuals who are ineligible for such compensation because they exhausted their rights to State unemployment compensation before there was an extended benefit period in the State; to the Committee on Ways and Means.

By Mr. WALSH:

H.R. 5637. A bill to amend the Internal Revenue Code of 1954 to allow individuals a deduction for volunteer services performed in Veterans' Administration hospitals; to the Committee on Ways and Means.

By Mr. WYLLIE:

H.R. 5638. A bill to amend section 924 (relating to commission of Federal felonies with firearms) of title 18 of the United States Code to make applicable to a first conviction under that section the rules for suspended or probationary sentences now applicable to second and subsequent convictions; to the Committee on the Judiciary.

H.R. 5639. A bill to amend the Postal Revenue and Federal Salary Act of 1967 to abolish the Commission on Executive, Legislative and Judicial Salaries; to the Committee on Post Office and Civil Service.

By Mr. DUNCAN of Tennessee (for himself and Mr. QUILLLEN):

H.R. 5640. A bill to amend section 103(c) of the Internal Revenue Code of 1954 to increase the exemption from the industrial development bond provisions for certain small issues; to the Committee on Ways and Means.

By Mr. GILMAN:

H.R. 5641. A bill to amend title II of the Social Security Act to increase to \$7,500 the amount of outside earnings which (subject to further increases under the automatic adjustment provisions) is permitted each year without any deductions from benefits thereunder; to the Committee on Ways and Means.

"(iii) 30 per centum of more of the gross income of such organization consists solely of amounts received from the owners of units within such condominium housing project.

"(C) For purposes of this paragraph, the term 'condominium housing project' means any condominium project substantially all the units of which are used by individuals as residences."

SEC. 2. The amendment made by the first section of this Act shall apply to taxable years beginning after December 31, 1974.

AUTHORIZATION FOR A NEW DENVER MINT

HON. PATRICIA SCHROEDER

OF COLORADO

IN THE HOUSE OF REPRESENTATIVES

Wednesday, March 26, 1975

Mrs. SCHROEDER. Mr. Speaker, I am today introducing a bill which will permit the construction of a new mint at Denver, Colo. I am happy to say that this measure is backed by the Department of the Treasury and that my colleagues from the State of Colorado (Mr. EVANS, Mr. JOHNSON, and Mr. WIRTH) and numerous members of the House Committee on Public Works and Transportation, to which the bill will be referred, are joining me in cosponsorship. Similar legislation is also being introduced in the Senate today by the Senators from Colorado, Mr. HASKELL and Mr. GARY W. HART.

The Denver Mint began minting coins for this Nation in 1906. It is a popular tourist attraction with about 4 million people a year visiting it. It produces 4.5 billion coins per year. It has also been declared a national historic landmark.

The increasing demand for coins—caused by a variety of factors such as vending machines, population growth, numismatics, and production of coins for other nations—is outstripping even the estimated demands met by the Nation's mint production at the three available mints at Philadelphia, San Francisco, and Denver. We now have plans for the production of many Bicentennial coins honoring great events and people of our Nation's past. This creates an additional, although profitable, burden on coin output. The projections are that by 1980, Americans will need 18 billion new coins per year. Without the new Denver Mint, however, our production capabilities will be but half that figure.

Having established a new mint at Philadelphia in the 1960's, the Department of the Treasury has laid plans for a new facility at Denver. As opposed to the present facility—expanded to the hill and causing congestion in mid-city Denver which was never envisioned in 1906 when the facility began production—a 35-acre site convenient both to the interstate highway and railroads has been chosen, and the General Services Administration has contracted for its purchase. The environmental impact statement has been filed, with the general finding that the new mint will improve the environment of the site. Being large, the site is capable of accommodating the latest manufacturing techniques.

It is planned, for example, that the new mint be constructed on one floor plan so that production from raw metal to finished coins can proceed on a smooth basis without the interruption of elevators. The Department of the Treasury has projected that this facility can produce three-fourths of our future coin requirements when completed. From the standpoint of my own constituents, the new facility will play an important part, economically and socially, in helping to stimulate and renew the core city of Denver—the sustaining element for the entire Denver Metropolitan area. It will also free up the beautiful old Denver Mint building for retirement and rebirth which I am sure will be beneficial to all of us.

Mr. Speaker, in these times of economic downturn and government deficits, it is well to note that the Bureau of the Mint operations are projected to bring over \$700 million during fiscal year 1976 into our Nation's treasury. The costs of the Bureau's business—even with projected outlays for initial construction of the new Denver Mint—are a fraction of this income: the \$41 million requested by the administration for the Bureau's budget. Not only does the Bureau of the Mint supply the coins to this Nation without which commerce would stand still, but it makes a handy amount of money in the process. It cannot, however, continue in its present course, or expand its revenue intakes, without congressional support for its projects. The return which the Bureau obtains on our money certainly points out its good business judgments. The new Denver Mint is crucial to its plans and the authorization bill for the new mint that I am today introducing is necessary to carry out the Bureau's plans for completion of the new facility by 1980.

Having visited the present Denver Mint on many occasions, I am consistently surprised at the productivity of its workers. I am very happy and grateful to say that so many of the mint's workers are represented by me in Congress. The production accomplished in this present historic site of a plant—crowded, outmoded, and improvised—is not in the best working conditions by any means. I look forward to seeing the mint workers in new surroundings where they can do their best without obstacles at every turn. Mr. Speaker, I urge that my colleagues on the House Committee on Public Works and in the whole House of Representatives work for early consideration and passage of the measure I am today introducing.

SUPPORT FOR 200-MILE FISHING LIMIT

HON. GERRY E. STUDDS

OF MASSACHUSETTS

IN THE HOUSE OF REPRESENTATIVES

Wednesday, March 26, 1975

Mr. STUDDS. Mr. Speaker, the following is an article which was written by Rev. John F. Moore and published in the Anchor, the official newspaper of the Diocese of Fall River, Mass. Reverend Moore offers a strong and eloquent call for the quick passage of legislation to

extend the U.S. fisheries jurisdiction to 200 miles. I want to thank Mrs. Katharine Nowak of Marion, Mass. for bringing this article to my attention, and I believe that it will be of great interest to all of the Members of the House of Representatives:

SAVE THE FLEET

(By Rev. John F. Moore)

Outside the public library in New Bedford stands the famous whaler statue. Inscribed on the face of the monument is the phrase "a dead whale or a stoved boat." Whaling is a thing of the past and soon the men who go down to the sea in ships will experience the same fate if someone does not come to the aid of the fishing fleets not only of this area but of the entire United States. Today's fisherman has found that his boat has been stoved in not by the legend of a Moby Dick but by the whale-like appetite of foreign fishing vessels and the complete indifference of our own government.

It is a sad sight to see the small, rusting trawler and draggers leave our fishing ports knowing that in a few hours and a few short miles from our shores they will be outclassed, outnumbered and outproduced by the new giants of the sea that gobble up what was once one of our most productive food sources and industries.

How can our aged wooden-hulled 75 foot trawlers compete with a modern 300 to 500 foot floating processing plant flying the hammer and sickle of Russia? Day after day, brave men from this area leave port with archaic and outmoded equipment to face the most modern Soviet fishing fleet in history.

Not only must they compete against these odds to seek what remains of the once plentiful food sources of the sea but they also must do battle on the high seas as Russian ships destroy their gear and equipment. As a result fewer American boats are willing to leave port, the fishing industry is in decline and a necessary food source is being depleted.

FEW REALLY CARE

Yet the greatest tragedy of all in this battle of the seas is that so few really do care. For example, what has the federal government really done to help renew and develop, expand and refurbish the New England fishing fleet?

Very little indeed. In fact it seems to have more interest in protecting the Russian fleet than modernizing and updating our own fishing industry.

Outside of mere tokenism, the local elected officials have not used their political influence or energies in really supporting and it may compete on an equal basis with the government-supported fleet of the Soviet Union.

If a few oil men from the south or some farmers in the midwest were in such a predicament the entire congress would be up in arms and rally to their cause. But when New England faces the extinction of one of its basic industries, who cares?

We all should care. One of our national basic food supplies is being severely threatened and * * * renewing our fishing fleet that destroyed by foreign invaders and overkill fishing.

Congress should be encouraged immediately to pass the 200 mile zone proposed for our national territorial waters and the necessary funds to enforce such a move. Nations like Peru are not afraid to take such a step and back it up with corresponding enforcement.

The national government also should support and encourage the total modernization of the American fishing industry that it may be an equal competitor in international fishing. In addition there must be a corresponding interest in research and conservation efforts of existing sea food sources.

This week the congress has proposed a 3.2 billion foreign aid bill. Why can't some of these monies be used to aid the hard-pressed and declining fishing industry? Each and



THE GENERAL COUNSEL OF THE TREASURY

WASHINGTON, D.C. 20220

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Dear Mr. Chairman:

Reference is made to your request for the views of this Department on H.R. 5620, "To amend the Act of August 20, 1963, as amended, relating to the construction of mint buildings."

The Act of August 20, 1963, as amended (31 U.S.C. 291-4), authorized the Secretary of the Treasury, acting through the Administrator of General Services, to acquire sites for, and to construct and equip, such buildings as may be necessary in connection with the operations of the Bureau of the Mint. For the funding of these objectives, section 4 of that Act authorized the appropriation of \$45 million for the fiscal years beginning July 1, 1963 and ending June 30, 1973. The bill would amend section 4 of the Act to increase from \$45 million to \$105 million the total amount authorized to be appropriated for constructing mint facilities since 1963 and would extend the time during which monies may be appropriated from July 1, 1973 to the fiscal year ending before July 1, 1983.

The bill would permit construction of a new mint in the City of Denver in replacement of the existing Denver mint. Of the \$45 million authorized for funding of mint construction by the Act of August 20, 1963, approximately \$40 million was expended to construct and equip a new mint in Philadelphia. By increasing the authorization to \$105 million for mint construction, the bill would enable the Department, subject to annual appropriations, to expend up to \$65 million for the construction and equipping of a new coinage facility at Denver.

Construction of the new mint at Denver has been approved by the Congress, which in the Act of July 9, 1971, Public Law 92-49, appropriated \$1.5 million for the acquisition of a construction site, and in the Act of July 13, 1972, Public Law 92-351, appropriated an additional \$2 million for architectural and engineering services. The \$3.5 million already appropriated by Congress under the authority of the 1963 Act is included in the \$65 million total funding which would be authorized by the bill for constructing a new mint at Denver. Thus, in terms of actual funding, the bill would authorize the appropriation of approximately \$61.5 million.

Replacing the existing Denver mint with a new facility is essential to assure production of coins in the quantity the nation will need by the 1980's and beyond. It is estimated by the Department and the Federal Reserve that by fiscal year 1980, the national coinage demand will rise to the neighborhood of 18 billion coins per year from the current annual demand of 12 billion coins. The demand is expected to increase further to 30 billion pieces by 1985.

To be able to satisfy the anticipated increase in coinage demand, the Denver mint, which has a present production capacity of about 5 billion coins a year, must be replaced with a new and modern facility by no later than 1980. Once completed, the new mint will have an initial production capacity of 10.5 billion coins per year, which could ultimately be expanded to over 25 billion coins annually. Together with the other mint facilities, which have a combined capacity of producing approximately 11 billion coins a year, the new Denver mint will represent an assurance that our country's coinage needs will be fully supplied during the years ahead.

The Department fully supports enactment of the proposed bill. We recommend, however, that the date, July 1, 1983, in the bill be changed to October 1, 1983, thereby authorizing appropriations for construction to the end of fiscal year 1983. Such change in the bill would bring it into conformity with section 501 of the Congressional Budget Act of 1974, Public Law 93-344, which provides that beginning October 1, 1976, each fiscal year shall commence on October 1 of each year and end on September 30 of the following year.

The Department has been advised by the Office of Management and Budget that there is no objection from the standpoint of the Administration's program to the submission of this report to your Committee.

Sincerely yours,

General Counsel

The Honorable
Robert E. Jones, Chairman
Committee on Public Works
and Transportation
House of Representatives
Washington, D. C. 20515

The Honorable John J. Rhodes

December 9, 1974

Douglas P. Bennett *DPB*
Special Assistant to the Assistant Secretary
(Legislative Affairs), Treasury Department

Need for Denver Mint construction legislation

We understand that Chairman Blatnik of the Public Works Committee intends to place S. 1901, which would authorize the appropriation of \$50 million for the construction of Mint facilities during the next ten years, back on the suspense calendar today. This bill, if enacted, would permit the Bureau of the Mint to replace the existing Denver Mint with a new and modern coinage facility at Denver. Passage of this bill was unanimously recommended by the House Public Works Committee last year. Also, it was passed by the Senate in June 1973. Since putting the bill back on the suspense calendar could lead to its prompt consideration by the House, we would very much appreciate your support for Chairman Blatnik's action.

Passage of this bill is essential to assure production of coins in the volume our Nation will need by the 1980's and beyond. The present facilities of the Mint cannot do so. The demand for coins required for business transactions throughout the country has increased very rapidly during the past decade or so. Between fiscal years 1960 and 1974, for example, coin production increased from 2.6 billion to 10.4 billion pieces a year. This surge in coin demand is expected to continue. In fiscal year 1975, the Mint is scheduled to manufacture over 12 billion pieces and in fiscal year 1976, over 14 billion pieces will be required. By fiscal year 1980, it is estimated that the national coinage demand will rise to the neighborhood of 18 billion coins a year; by 1985 to 25 billion pieces; and by 1988 approximately to 40 billion pieces per year. At the same time, even with the addition of production equipment and working at full capacity on a three shift per day basis, the Mint could at most hope to expand its production capabilities to between 17 and 18 billion coins per year.

The ever increasing coinage demand of the Nation cannot be met indefinitely through the addition of production equipment within existing Mint facilities. Indeed, it has been clear for some time that these needs can only be supplied by replacing the outmoded production facilities of the Denver Mint with a new and modern facility. The Congress recognized the necessity for a new mint at Denver when it appropriated \$3.5 million in fiscal years 1972 and 1973 for site acquisition and design services for the new Denver Mint under the authority of a 1963 legislation, which contains the general authority of the Treasury to construct Mint facilities. However, since the authorization contained

in that Act expired at the end of fiscal year 1973, enactment of S. 1901 is essential so that the Treasury Department may proceed with the construction of the new facility.

Once completed, the new mint is scheduled to produce 10.5 billion coins, as compared with the present Denver production capacity of about 5 billion coins. It is planned to expand the production capability of the new mint to 16 billion coins thereafter, with an ultimate capacity of over 25 billion coins a year. Together with the other minting facilities, which have a capacity of approximately 11 billion coins a year, the new Denver Mint will represent an assurance that our country's coinage needs will be supplied during the years ahead.

CONSTRUCTION AND EQUIPMENT OF BUILDINGS [NEW]

Library references: United States 34; C.J.S. United States § 125.

§ 291. Design, construction and equipment of buildings; acquisition of sites

The Secretary of the Treasury is hereby authorized, acting through the Administrator of General Services, (1) to design and construct such buildings as may be required in connection with the operations of the Bureau of the Mint; (2) to furnish and equip such buildings with all necessary building equipment, facilities, and utilities; and (3) to acquire suitable sites for such buildings by purchase, condemnation, donation, exchange, or otherwise. The Secretary of the Treasury is authorized to furnish and equip such buildings with all necessary coinage and other special equipment and facilities. Pub.L. 88-102, § 1, Aug. 20, 1963, 77 Stat. 129.

§ 292. Functions of Secretary of the Treasury and Administrator of General Services

All functions with respect to the operation, maintenance, and custody of any building constructed pursuant to sections 291-294 of this title are hereby vested in the Secretary of the Treasury, and all functions with respect to the repair and improvement of any such building are hereby vested in the Administrator of General Services. Pub.L. 88-102, § 2, Aug. 20, 1963, 77 Stat. 129.

§ 293. Public building construction unauthorized

Nothing contained in sections 291-294 of this title shall be construed as authorizing the construction of any public building as defined in the Public Buildings Act of 1959. Pub.L. 88-102, § 3, Aug. 20, 1963, 77 Stat. 129.

References in Text. The Public Buildings Act of 1959, referred to in the text, is classified to chapter 12 of Title 40, Public Buildings, Property and Works.

§ 294. Appropriations; termination date; limitation on amount; transfer of funds from Department of the Treasury to Administrator of General Services

There is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, for each fiscal year which begins after June 30, 1963, and ends before July 1, 1973, such sums as may be necessary to carry out sections 291-294 of this title, except that the aggregate of sums appropriated under this section shall not exceed \$45,000,000. Sums appropriated to the Department of the Treasury for the purposes of sections 291-294 of this title may be available for transfer to the Administrator of General Services to remain available until expended. Pub.L. 88-102, § 4, Aug. 20, 1963, 77 Stat. 129, amended Pub.L. 89-81, Title II, § 202, July 23, 1965, 79 Stat. 256.

1965 Amendment. Pub.L. 89-81 increased the limit on the aggregate of sums appropriated under this section from \$30,000,000 to \$45,000,000.

Legislative History: For legislative history and purpose of Pub.L. 89-81, see 1965 U.S. Code Cong. and Adm. News, p. 2299.

CHAPTER 8.—COINS, COINAGE

JOINT COMMISSION ON THE COIN-AGE [NEW]

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|------|---|------|
| Sec. | | Sec. |
| 301. | Membership. | 394. |
| 302. | Termination of membership of public officials and Members of Congress; vacancies. | 395. |
| 303. | Functions and duties. | |
| 304. | Authorization of appropriations. | |

COINS AND COINAGE

- | | | |
|-------|--|-------|
| 321a. | Inscription on currency and coins [New] | 405a- |
| 321b. | Silver dollars; Eisenhower and moon landing dollars [New]. | 405a- |
| 321c. | Same; date on silver dollars [New]. | |

CLAD COINAGE [NEW]

- | | | |
|------|---|-----|
| 391. | Minting and issuance of clad coins; denominations and specifications; limitation on minting of dollar pieces. | 401 |
| 392. | Legal tender. | |
| 393. | Acquisition of production capability for minting clad coins; public contracts and procurement. | |

JOINT COMMISSION ON T

§ 301. Membership

The President is hereby authorized to the Coinage to be composed of the Secretary of Commerce; the Director of the Mint; the chairman of the Senate Banking and Currency Committee, not members of such committee of the Senate; the chairman and ranking members of the House Banking and Currency Committee, and representatives, not members of such committee, of the House of Representatives; and eight public members to be appointed by the President, of whom shall be associated or identified with industry, group, business, or association of States. Pub.L. 89-81, Title III, § 301, J

Office of Management and Budget. The Bureau of the Budget was designated as the Office of Management and Budget and the offices of Director of the Bureau of the Budget, Deputy Director of the Bureau of the Budget, and Assistant Directors of the Bureau of the Budget were designated Director of the Office of Management and Budget, Deputy Director of the Office of Management and Budget, and Assistant Directors of the Office of Man-

§ 302. Termination of membership Congress; vacancies

No public official or Member of Congress shall continue to hold the office by virtue of which he became a member of the Joint Commission. Any vacancy on the Joint Commission shall be filled by the President choosing of a successor member in the Pub.L. 89-81, Title III, § 302, July 23, 1965.

§ 303. Functions and duties

The Joint Commission shall study the coinage program established by the



Public Law 93-127
93rd Congress, S. 1141
October 18, 1973

An Act

To provide a new coinage design and date emblematic of the Bicentennial of the American Revolution for dollars, half dollars, and quarter dollars, to authorize the issuance of special silver coins commemorating the Bicentennial of the American Revolution, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the reverse side of all dollar, half-dollar, and quarter-dollar coins minted for issuance on or after July 4, 1975, and until such time as the Secretary of the Treasury may determine, shall bear a design determined by the Secretary to be emblematic of the Bicentennial of the American Revolution.

American
Revolution
Bicentennial.
Coinage design
and date
emblematic.

Sec. 2. All dollar, half-dollar, and quarter-dollar coins minted for issuance between July 4, 1975, and January 1, 1977, shall bear "1776-1976" in lieu of the date of coinage; and all dollar, half-dollar, and quarter-dollar coins minted thereafter until such time as the Secretary of the Treasury may determine shall bear a date emblematic of the Bicentennial in addition to the date of coinage.

87 STAT. 455
87 STAT. 456

Sec. 3. Until the Secretary of the Treasury determines that the mints of the United States are adequate for the production of ample supplies of coins and medals, any facility of the Bureau of the Mint may be used for the manufacture and storage of medals and coins.

Manufacture
and storage.

Sec. 4. Notwithstanding any other provision of law with respect to the design of coins, the Secretary shall mint prior to July 4, 1975, for issuance on and after such date, 45 million silver-clad alloy coins authorized under section 101(a) of the Coinage Act of 1965, commemorating the Bicentennial of the American Revolution, of such design, in such denomination, and containing such quantities of such other metals as he determines appropriate. In addition, the Secretary shall coin and issue not more than an additional 15 million such coins, if he determines such coins are needed to meet public demand. Coins minted under this section may only be distributed by the Secretary as proof or uncirculated coins at such prices as he may determine. The Secretary is authorized, by regulation, to limit the number of silver coins minted under this section which any one person may purchase. Coins minted under this section shall be treated as pieces subject to the one hundred and fifty million piece limitation contained in section 101(d) of the Coinage Act of 1965, and shall be subject to such limitation. Receipts from the sale of coins under this section shall be covered into the Treasury as miscellaneous receipts.

Silver-clad
coins, limi-
tations.

84 Stat. 1768.
31 USC 391.

87 STAT. 456

Numismatic
items, dis-
tribution.

Sec. 5. In connection with the operations of the Bureau of the Mint, the Secretary of the Treasury is authorized to manufacture and distribute numismatic items. Proceeds from the sale of numismatic items shall be reimbursed to the current appropriation for the cost of manufacturing and handling of such items.

Approved October 18, 1973.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 93-391 accompanying H.R. 8789 (Comm. on Banking and Currency) and No. 93-521 (Comm. of Conference).

SENATE REPORT No. 93-244 (Comm. on Banking, Housing and Urban Affairs).
CONGRESSIONAL RECORD, Vol. 119 (1973):

July 11, considered and passed Senate.

Sept. 12, considered and passed House, amended, in lieu of H.R. 8789.

Oct. 4, House and Senate agreed to conference report.



STATEMENT OF THE HONORABLE DAVID R. MACDONALD
ASSISTANT SECRETARY OF THE TREASURY
(ENFORCEMENT, OPERATIONS, AND TARIFF AFFAIRS)
BEFORE THE
SUBCOMMITTEE ON PUBLIC BUILDINGS AND GROUNDS
OF THE HOUSE COMMITTEE ON PUBLIC WORKS
TUESDAY, MAY 6, 1975 AT 3:00 P.M.

RECEIVED

MAY 12 1975

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

Mr. Chairman, I am pleased to be here today to testify in support of H. R. 5620, which would enable the Department to move forward with the construction of a new mint at Denver. The Department fully endorses this measure, which would authorize the appropriation of funds necessary to construct and equip a new and modern coinage facility. This bill would raise the total funding authorized by the Congress for Mint construction to \$105 million since 1963. Of that amount, \$40 million has been used for constructing and equipping the new Philadelphia Mint; thus, this measure would authorize the funding of up to \$65 million to construct a new coinage facility in place of the existing mint at Denver.

Enactment of this measure would assure production of coins in the volume our Nation will need by the 1980's and beyond. The present facilities of the Mint cannot do so. The demand for coins, which has historically increased at a rate of about ten percent per year, has almost doubled since 1970. Even if the present rate of increase levels off somewhat in the future, the Mint with its present capacity will have great difficulty in meeting coinage demands by the end of this decade. The Congress should, therefore, take action now to prevent the occurrence of a coin shortage similar to the one experienced in the early 1960's, one which would naturally hinder retail transactions throughout the Nation and seriously inconvenience our citizens.

The ever increasing coinage demand of the Nation cannot be met indefinitely through the addition of production equipment in existing Mint facilities. Indeed, it has been clear for some time that these needs can only be supplied by replacing the existing Denver mint, which began its coinage operations in 1906, with a new and modern facility. The Congress recognized the necessity for a new mint at Denver when it appropriated \$3.5 million for fiscal years 1972 and 1973 for site acquisition and design services for a new Denver mint under the authority of the 1963 Mint construction legislation. However, since the authorization contained in that Act expired at the end of fiscal year 1973, enactment of the bill before your Subcommittee is essential so that the Department may proceed with the construction of a new facility.

Except for the amount of authorization, the bill before your Subcommittee is the same as the measure proposed by the Administration in early 1973 and which this Subcommittee, after hearings, approved in the fall of 1973. While the passage of the earlier measure was recommended by the full Committee, and passed by the Senate, it failed to gain the votes necessary for suspension of rules in the closing days of the 93rd Congress. The \$10 million increase in the present authorization proposal has been caused by revised estimates due to inflationary factors during the past two years. In fact I am concerned that the longer this project is delayed, the higher will be its price tag because of constantly higher construction costs.

Finally, Mr. Chairman, I want to point out that the funds authorized by this legislation would be returned many-fold to our taxpayers in the

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The Department of the **TREASURY** NEWS

BUREAU OF THE MINT

WASH., D.C. 20220 - W04-5011



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ASSISTANT SECRETARY OF THE TREASURY
(ENFORCEMENT, OPERATIONS, AND TARIFF AFFAIRS)
BEFORE THE
SUBCOMMITTEE ON PUBLIC BUILDINGS AND GROUNDS
OF THE HOUSE COMMITTEE ON PUBLIC WORKS
TUESDAY, MAY 6, 1975 AT 3:00 P.M.

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The plan to replace the old Mint at Denver was presented to the Congress in 1971. In its fiscal year 1972 budget, the Department included \$1.5 million for the acquisition of the new Mint site. The Congress agreed with the need for a new facility and appropriated the requested amount. For fiscal year 1973, the Congress appropriated an additional \$2 million to enable the Mint to enter into a contract for architectural and engineering services, necessary to permit the construction and equipping of the new facility in a timely manner. Both of these appropriations were made under the authority of the 1963 Mint construction statute and were included in the \$45 million total authorized by that law. However, as I mentioned before, Mr. Chairman, the authority contained in that Act expired on July 1, 1973. Forty million dollars appropriated by the Congress under the 1963 statute were utilized for the design and construction of the Philadelphia Mint. Of the \$3.5 million so far appropriated for the new Denver Mint, only \$80,000 have been expended, as we are awaiting Congressional approval of the full authorization before proceeding on irrevocable activities regarding design and construction of the new facility. Also, \$1.5 million of the previous authorization was never used.

In May of 1973, we reached an agreement with the City of Denver for the acquisition of an appropriate site for the new Mint. Under the agreement,

the City was to assemble an approximately thirty-three acre land-package along the South Platte River in Denver. However, because of plans of the Burlington Northern Railroad Company to relocate the main north-south railroad trackage through Denver immediately adjacent to this constricted, long, narrow site, we abandoned this proposed location and renewed our site selection actions. After a thorough and intensive examination of many alternatives, carried out in cooperation with all concerned Federal, State and local entities, and after completion of clearance in accordance with the National Environmental Policy Act of 1969, a new site was selected on July 16, 1974. This site, in northeast Denver about halfway between the downtown business district and the Denver airport, is a part of the Clayton Trust Property in the Park Hill area. This is an excellent site which provides sufficient space for presently envisaged and future expansion requirements, is well-served by public transportation and utilities, is readily accessible for public visitors, and maintains the historic ties of a Mint with the City and County of Denver. As the site is on a part of an existing golf course, the City of Denver is presently rebuilding the golf course, including transplanting of trees and shrubs, on the eastern portion of the Clayton Trust Property. This eastern portion of the property is unused and grown up in weeds. The net effect will be to preserve open space and beneficial plant life in the site vicinity. We have executed an agreement with the City of Denver regarding acquisition and conveyance of the approximate thirty-four acres involved, at a cost to the Federal Government not to exceed \$1.5 million. Site conveyance is scheduled presently for September 15 of this year.

In conjunction with the General Services Administration, we have made arrangements for the development of the design for the project, including the design of the production process, by an architect-engineering firm. For that purpose, we have already transferred to the General Services Administration the \$2 million appropriated to us by Congress in 1973.

The design, construction and equipping of the new Mint at Denver, which we expect to be operational by 1980, will involve two stages. The authorization we are now requesting from Congress pertains to the first stage of the project. This stage includes the site acquisition and design preparation activities, for which the necessary funds have already been authorized and appropriated, as well as the construction and equipping of a modern coin production and administrative facility which would be covered by the authorization here sought. Under our current estimates, the total cost of this stage of the project will be \$65 million, including the \$3.5 million already appropriated for that purpose by the Congress. The legislation now pending before you would authorize appropriations for the full cost of this first stage.

The new mint is planned for an initial production capacity of 10.5 billion coins per year. When fully equipped, it could manufacture 16 billion coins per year and would thus enable us to meet the ever-growing coinage demands of the Nation. In addition, however, we intend to include a strip fabrication facility in the new Denver Mint. The construction of such a facility, which would be the second phase of the project, is essential to assure the constant supply of high quality strip at a reasonable price for coinage blanks.

The authorization in H. R. 5620 will not cover the cost of construction of this strip facility and therefore we will have to come back to Congress for additional authorization. The reason we are unable to request authorization for the strip fabrication facility at this time is that we are currently examining the long-range nature of the overall coinage situation, including a study of demand forecasting, denominations and composition of coins.

In the meantime, Mr. Chairman, we consider it in the best interest of the Nation that we go forward with the construction of the new Mint at Denver. We recommend that the language of the bill before you be changed slightly, by changing the date July 1, 1983 to October 1, 1983, so that it is in agreement with the provisions of the Congressional Budget and Impoundment Act of 1974, Public Law 93-344.

I respectfully urge you to give favorable consideration to the proposed legislation which would enable the Mint to meet the coinage needs of the public.



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The plan to replace the old Mint at Denver was presented to the Congress in 1971. In its fiscal year 1972 budget, the Department included \$1.5 million for the acquisition of the new Mint site. The Congress agreed with the need for a new facility and appropriated the requested amount. For fiscal year 1973, the Congress appropriated an additional \$2 million to enable the Mint to enter into a contract for architectural and engineering services, necessary to permit the construction and equipping of the new facility in a timely manner. Both of these appropriations were made under the authority of the 1963 Mint construction statute and were included in the \$45 million total authorized by that law. However, as I mentioned before, Mr. Chairman, the authority contained in that Act expired on July 1, 1973. Forty million dollars appropriated by the Congress under the 1963 statute were utilized for the design and construction of the Philadelphia Mint. Of the \$3.5 million so far appropriated for the new Denver Mint, only \$80,000 have been expended, as we are awaiting Congressional approval of the full authorization before proceeding on irrevocable activities regarding design and construction of the new facility. Also, \$1.5 million of the previous authorization was never used.

In May of 1973, we reached an agreement with the City of Denver for the acquisition of an appropriate site for the new Mint. Under the agreement,

the City was to assemble an approximately thirty-three acre land-package along the South Platte River in Denver. However, because of plans of the Burlington Northern Railroad Company to relocate the main north-south railroad trackage through Denver immediately adjacent to this constricted, long, narrow site, we abandoned this proposed location and renewed our site selection actions. After a thorough and intensive examination of many alternatives, carried out in cooperation with all concerned Federal, State and local entities, and after completion of clearance in accordance with the National Environmental Policy Act of 1969, a new site was selected on July 16, 1974. This site, in northeast Denver about halfway between the downtown business district and the Denver airport, is a part of the Clayton Trust Property in the Park Hill area. This is an excellent site which provides sufficient space for presently envisaged and future expansion requirements, is well-served by public transportation and utilities, is readily accessible for public visitors, and maintains the historic ties of a Mint with the City and County of Denver. As the site is on a part of an existing golf course, the City of Denver is presently rebuilding the golf course, including transplanting of trees and shrubs, on the eastern portion of the Clayton Trust Property. This eastern portion of the property is unused and grown up in weeds. The net effect will be to preserve open space and beneficial plant life in the site vicinity. We have executed an agreement with the City of Denver regarding acquisition and conveyance of the approximate thirty-four acres involved, at a cost to the Federal Government not to exceed \$1.5 million. Site conveyance is scheduled presently for September 15 of this year.

In conjunction with the General Services Administration, we have made arrangements for the development of the design for the project, including the design of the production process, by an architect-engineering firm. For that purpose, we have already transferred to the General Services Administration the \$2 million appropriated to us by Congress in 1973.

The design, construction and equipping of the new Mint at Denver, which we expect to be operational by 1980, will involve two stages. The authorization we are now requesting from Congress pertains to the first stage of the project. This stage includes the site acquisition and design preparation activities, for which the necessary funds have already been authorized and appropriated, as well as the construction and equipping of a modern coin production and administrative facility which would be covered by the authorization here sought. Under our current estimates, the total cost of this stage of the project will be \$65 million, including the \$3.5 million already appropriated for that purpose by the Congress. The legislation now pending before you would authorize appropriations for the full cost of this first stage.

The new mint is planned for an initial production capacity of 10.5 billion coins per year. When fully equipped, it could manufacture 16 billion coins per year and would thus enable us to meet the ever-growing coinage demands of the Nation. In addition, however, we intend to include a strip fabrication facility in the new Denver Mint. The construction of such a facility, which would be the second phase of the project, is essential to assure the constant supply of high quality strip at a reasonable price for coinage blanks.

The authorization in H. R. 5620 will not cover the cost of construction of this strip facility and therefore we will have to come back to Congress for additional authorization. The reason we are unable to request authorization for the strip fabrication facility at this time is that we are currently examining the long-range nature of the overall coinage situation, including a study of demand forecasting, denominations and composition of coins.

In the meantime, Mr. Chairman, we consider it in the best interest of the Nation that we go forward with the construction of the new Mint at Denver. We recommend that the language of the bill before you be changed slightly, by changing the date July 1, 1983 to October 1, 1983, so that it is in agreement with the provisions of the Congressional Budget and Impoundment Act of 1974, Public Law 93-344.

I respectfully urge you to give favorable consideration to the proposed legislation which would enable the Mint to meet the coinage needs of the public.



RECEIVED

RELEASE ON DELIVERY

MAY 12 1975

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

STATEMENT OF
THE HONORABLE MARY T. BROOKS
DIRECTOR OF THE MINT
BEFORE THE PUBLIC BUILDINGS AND GROUNDS SUBCOMMITTEE
OF THE HOUSE COMMITTEE ON PUBLIC WORKS
MAY 6, 1975 at 3:00 PM

Mr. Chairman and Members of the Subcommittee, I welcome the opportunity to appear before you in support of proposed legislation which would enable the construction of a new Mint at Denver, Colorado. Specifically, the bill before your Subcommittee, H. R. 5620, would amend legislation enacted by Congress in 1963 which authorized the Secretary of the Treasury, acting through the Administrator of General Services, to acquire sites for, and to construct and equip, such buildings as may be necessary in connection with the operations of the Bureau of the Mint. The bill before your Subcommittee would amend that Act to authorize an increase of \$60 million in the amount of money that can be appropriated to the Treasury Department for the construction of Mint facilities. This would raise the total authorized by Congress since 1963 for Mint construction to \$105 million. The expenditure of the additional \$60 million authorized by the bill would be spread over a four-year period extending through fiscal year 1979. In addition, the bill would extend the time during which the funds so authorized could be appropriated from July 1, 1973 to July 1, 1983.

Although the proposed bill would authorize expenditures for general construction and equipment requirements of the Mint, its primary objective is to permit us to go forward with the construction of a new facility in the Denver area. At the present time, four Mint facilities produce coinage for the entire Nation. These are the new Mint at Philadelphia, which began operations in August 1969; the San Francisco Assay Office, which was brought back into production in the fall of 1966; the Denver Mint, which was built around the turn of the century; and a temporary operation at the West Point Silver Depository. It has been clear to the Treasury Department for about ten years now that the Nation's increasing coinage needs would, at the minimum, require an expansion and modernization of the outmoded production facilities of the Denver Mint. This need was brought to the attention of the Congress, which in the 1966 Supplemental Appropriation Act, designated \$100,000 to develop plans for a cladding capability and for related construction at the existing Denver Mint. However, a study undertaken by a private architect-engineering firm recommended that, instead of expanding the present Denver facility, construction of a new Mint on a new site was the optimum plan in order to bring the Denver facility to a production capability sufficient to meet growing coinage needs.

The national coinage demand, according to our most recent forecasts, is estimated to rise to 18 billion coins per year by 1980, from the present 12 billion coins per year. As you well know, Mr. Chairman, we are now producing the new bicentennial design quarters, half-dollars and dollars to be issued after July 4, 1975. The anticipated demand by collectors for these bicentennial pieces, together with increasing commercial demand for coinage,

will reach a point by 1977 or 1978 where the need for coinage could exceed our current production capability. With existing facilities, we can produce only about 13 billion pieces per year by working three shifts at full capacity. Thus, well before the new Mint is completed, we will need to take action to increase our current productivity by installing additional equipment in our present facilities.

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I respectfully urge you to give favorable consideration to the proposed legislation which would enable the Mint to meet the coinage needs of the public.

Copies of Congressional Authorization & Regulation for the Mount Hood

Congressional Correspondence File



*File w/ letter
from Pat Schroeder*

July 3, 1975

Mr. Frank W. Rhea
Facilities Project Manager
Bureau of the Mint
Denver Mint
320 W. Colfax Avenue
Denver, Colorado 80204

Dear Mr. Rhea,

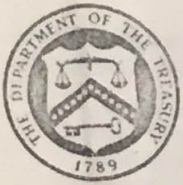
Acknowledging receipt of your letter pertaining to official progress report photographs of the new Denver Mint.

I will follow through in contacting Mr. Gess as you have suggested.

Thank you for your interest and concern, and also for providing the necessary information on the mint project.

Most sincerely,

Edward A. DeCroce, M. Photog., Cr.,
EAD/sd



OFFICE OF
SUPERINTENDENT

THE DEPARTMENT OF THE TREASURY

UNITED STATES MINT

DENVER, COLO. 80204

June 2, 1975

Mr. Edward DeCroce
DeCroce Studios
5101 East Colfax Avenue
Denver, Colorado

Dear Sir:

Congresswoman Patricia Schroeder has asked me to reply directly to you in response to your letter to her regarding a contract for official progress report photographs of the new Denver Mint.

As you know, the design and construction contracts for the new Mint will be awarded and administered by the General Services Administration in coordination with the Bureau of the Mint. GSA's normal practice is to have the project construction management firm, or alternatively the general contractor, provide progress report photographs. Thus, it is suggested that you contact Mr. Dave Gess, the GSA Denver Mint Project Manager, regarding possible use of your services for this function. Mr. Gess's address is: Construction Management Division, Public Buildings Service, GSA Region VIII, Building 41, Denver Federal Center, Denver, Colorado, 80225.

Based on present planning, it is expected that construction on this project will not begin until at least one year from now, with the possibility of delay unless the Congress acts favorably on pending authorization and appropriations legislation.

Your interest in the new Denver Mint project is appreciated.

Sincerely,

Frank W. Rhea
Facilities Project Manager
Bureau of the Mint
Denver Mint
320 W. Colfax Avenue
Denver, Colorado 80204

PATRICIA SCHROEDER
1ST DISTRICT, DENVER, COLORADO

DISTRICT OFFICE:
DENVER FEDERAL BUILDING
1767 HIGH STREET
DENVER, COLORADO 80218
(303) 837-2354

WASHINGTON OFFICE:
1131 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, D.C. 20515
(202) 225-4431

ARMED SERVICES COMMITTEE
POST OFFICE AND CIVIL
SERVICE COMMITTEE

Congress of the United States
House of Representatives
Washington, D.C. 20515

May 29, 1975

Frank W. Rhea
Facilities Project Manager
Bureau of the Mint
Denver Mint
320 West Colfax Ave.
Denver, CO 80204

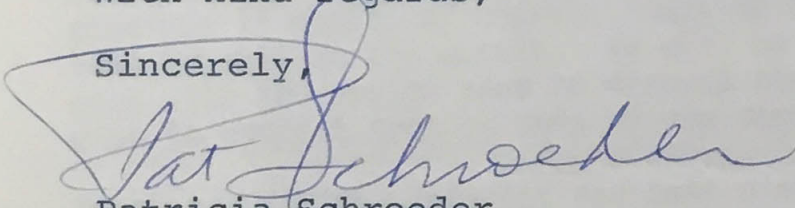
Dear Mr. Rhea:

Mr. Edward De Croce from De Croce Studios, 5101 East Colfax Avenue, has asked my assistance in obtaining information pertaining to official progress report photographs of the new Denver Mint. Mr. De Croce is interested in the contract to take the photographs.

Would you please repond directly to Mr. De Croce concerning the possibilities of such a contract?

With kind regards,

Sincerely,



Patricia Schroeder
Member of Congress

PS:law:sd



THE DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20549

L. & A. INVESTMENTS
1545 Hooker Street
Denver, Colorado 80204

June 3, 1975

May 21, 1975

Department of the Treasury
Bureau of the Mint
Denver Mint
320 West Colfax Avenue
Denver, Colorado 80204

Attention: Mr. Frank W. Rhea
Facilities Project Manager

Dear Mr. Rhea:

Thank you very much for your letter to us of May 21, 1975 in which you discussed the possible use of the Allen Tupper True murals for installation in the new Mint.

We agree with your thinking that the Architect-Engineer firm should have the opportunity of studying design alternatives for aesthetic treatment. We also feel confident, like yourself, that the next several months will see favorable resolution of uncertainties and general positive progress on the new Mint facility. We would like to hear from you at such time as you feel further discussion of the murals is appropriate.

We would like for you to note that the murals are quite large (11'-0" wide by 5'-6" high) and will require a significant amount of space (and proper placement) to be viewed at best advantage. If these murals are to be considered for placement in the Mint the design team should be made aware of the space requirement anticipated. If sufficient space is not provided it would, of course, limit or exclude the ability of the design team to utilize the murals. We will be pleased to show the murals and/or meet with the design team to discuss the space requirements. You may wish to contact them on this as you deem expedient.

Thank you for your interest and best wishes for successful and timely completion of the new Mint.

Sincerely,

L. & A. INVESTMENTS

Richard L. Nelson

Richard L. Nelson,
Vice-President

XC: Congresswoman, Patricia Schroeder

Sincerely,

Frank W. Rhea

Frank W. Rhea
Facilities Project Manager
Bureau of the Mint, Denver Mint
320 West Colfax Avenue



THE DEPARTMENT OF THE TREASURY

WASHINGTON, D.C. 20220

OFFICE OF
DIRECTOR OF THE MINT

May 21, 1975

Richard L. Nelson
Vice President
L & A Investments
1545 Hooker Street
Denver, Colorado 80204

Dear Mr. Nelson:

Congresswoman Patricia Schroeder has asked me to write directly to you in response to your letter to her of May 9, 1975, regarding the Allen Tupper True Murals.

Although we in the Bureau of the Mint have completed much detailed planning for the new Denver Mint, including the selecting of the site, we have not initiated specific design of the facility by the selected architect-engineer team due to uncertainties with respect to Congressional approval of required authorization and appropriations legislation. We are hopeful that these matters will be resolved favorably in the next two or three months, so that we will be enabled to proceed without further delay on the project. In view of this situation, we feel that it would be inappropriate to make any irreversible decisions and commitments at this time regarding the decorations and art work for the entrance foyers and public areas of this important new structure. We believe that the architect-engineer firm, with his selected consultants, should have the opportunity to prepare alternative design tentatives, including recommendations for appropriate and compatible aesthetic treatment of the facility interiors, before any definite decisions are made.

It is suggested that if the Dickenson Branch building is demolished before we arrive at a decision on art work you consider removing and preserving the murals for possible use in the new Mint. Also, we are hopeful that historic objects, furniture, decorations and art work will be donated for use and display in this facility, as is the case for many of the items on display in our Mint Museum in San Francisco.

We will give further attention to this matter as we proceed through the design phases of this project with the design team. We appreciate your interest in the new Denver Mint.

Sincerely,

Frank W. Rhea
Facilities Project Manager
Bureau of the Mint, Denver Mint
320 West Colfax Ave., Denver, Colo. 80204

cc: Congresswoman
Patricia Schroeder



Keep Freedom in Your Future With U.S. Savings Bonds



THE DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

OFFICE OF
DIRECTOR OF THE MINT

May 21, 1975

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Vice President
L & A Investments
1545 Hooker Street
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Sincerely,

Frank W. Rhea
Facilities Project Manager
Bureau of the Mint
Denver Mint
320 West Colfax Avenue
Denver, Colorado 80204



cc: Congresswoman Patricia Schroeder

Keep Freedom in Your Future With U.S. Savings Bonds



THE DEPARTMENT OF THE TREASURY

WASHINGTON, D.C. 20220

May 21, 1975

OFFICE OF
DIRECTOR OF THE MINT

Richard L. Nelson
Vice President
L & A Investments
1545 Hooker Street
Denver, Colorado 80204

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Sincerely,

Frank W. Rhea
Facilities Project Manager
Bureau of the Mint
Denver Mint
320 West Colfax Avenue
Denver, Colorado 80204



cc: Congresswoman Patricia Schroeder

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PATRICIA SCHROEDER
1ST DISTRICT, DENVER, COLORADO

DISTRICT OFFICE:
DENVER FEDERAL BUILDING
1767 HIGH STREET
DENVER, COLORADO 80218
(303) 837-2354

WASHINGTON OFFICE:
1131 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, D.C. 20515
(202) 225-4431

ARMED SERVICES COMMITTEE
POST OFFICE AND CIVIL
SERVICE COMMITTEE

Congress of the United States
House of Representatives
Washington, D.C. 20515

May 14, 1975

Frank W. Rhea
Facilities Project Manager
U.S. Mint
320 W. Colfax Ave.
Denver, CO 80204

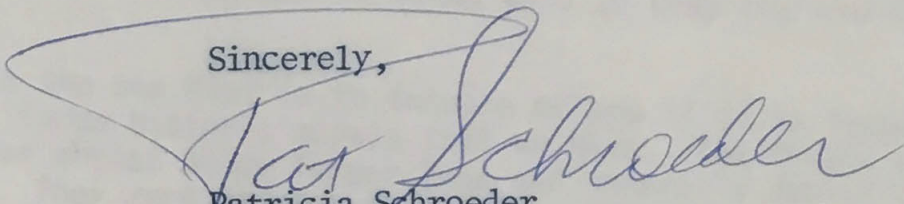
Dear Mr. Rhea:

I am writing to you on behalf of Richard L. Nelson who has inquired of my office about a matter in your jurisdiction. I have enclosed his letter for your convenience.

I would appreciate your responding directly to Mr. Nelson about the matters raised in his letter. Please keep me informed, through my Denver District Office, of your progress in this matter.

With kind regards,

Sincerely,



Patricia Schroeder
Member of Congress

PS:mr

Encl.

cc: Richard L. Nelson
Vice President
L. & A. Investments
1545 Hooker
Denver, CO 80204

May 9, 1975

L. & A. INVESTMENTS

1545 Hooker Street

Denver, Colorado 80204

May 9, 1975

The Honorable Patricia Schroeder
Federal Office Building
1961 Stout Street
Denver, Colorado 80202

Re: Denver Mint

Madam:

We have been following the progress of the new Denver Mint and are pleased to read in the Denver Post that the House Subcommittee has approved the authorization bill for construction. We feel that this progress is largely due to your efforts and congratulate you on being able to keep the new Mint progressing.

Our specific interest in the new Mint is to inquire of you if it is feasible as a permanent home for large historic murals that we have. The murals were painted in 1913 by Denver artist Allen Tupper True and generally depict the settlement of the west. They were painted in the Dickenson Branch of the Denver Public Library System which we acquired in 1968 and the building may soon be demolished and we are trying to find a worthy place for the murals. The Mint is a big tourist attraction and seen by multitudes of persons daily from all over the nation, what better home for such worthy art work could be appropriate?

Other examples of Mr. True's works are in the Colorado State Capitol, the Missouri State Capitol, Wyoming State Capitol, Bell Telephone Building, Colorado National Bank Building and various other buildings. We are enclosing a copy of biographical data on Mr. True for your examination. The restored value of the murals has been appraised at \$150,000 and \$154,000 respectively by two (2) separate appraisals. Assuming that these murals are determined to be accepted for the new Mint, we feel that a purchase arrangement could be achieved if coupled with a civic fund raising drive. We would appreciate your thoughts on this.

We have a genuine concern that the murals remain for the country's future generations if that is possible. We know that you have been a champion of preserving Colorado heritage and therefore would welcome whatever guidance you can give us.

May 9, 1975

Re: Denver Mint

Could you spare a few minutes from your busy schedule to advise us about this? We would be most grateful for your guidance.

Very truly yours,
L. & A. INVESTMENTS

Richard L. Nelson

Richard L. Nelson,
Vice-President

RLN/cm1

Page 2 of 2

BIOGRAPHICAL DATA CONCERNING THE LIFE AND CAREER OF
ALLEN TUPPER TRUE
1881-1955

Allen Tupper True was one of Colorado's most famous and distinguished artists. He was particularly noted for his many murals depicting Western and outdoor subjects. He loved the outdoors and was an expert on the history, costumes and lore of the West. Allen True was nationally famous for his treatment of huge wall spaces in a Western theme.

Allen Tupper True was born May 30, 1881, in Colorado Springs, Colorado. He was the son of Henry A. and Margaret Tupper True.

He spent his early years in Colorado Springs. The family then moved to Denver where True attended Corona school then Manual High School. He graduated from high school in 1899. He then studied two years at Denver University. True left for Washington D.C. in 1901, where he attended and studied at the Corcoran Art School, winning high honors.

Allen True was chosen by Howard Pyle as one of twelve to be taught and supervised under his special attention and direction. True was one of only two selected that year. This was a very high honor and greater than any scholarship could be. Howard Pyle was the Dean of American Illustrators and his pupils included some of the finest artists and illustrators of that era such as N. C. Wyeth, Harvey Dunn, Stanley Arthurs and Frank Schoonover. True studied with Pyle from 1902 to 1908. He then worked awhile as an illustrator in the East for such magazines as Scribners, Harpers and the old Life.

Allen True then had the great honor and privilege to go to England as an assistant and to study under the very renowned, internationally famous mural painter Frank Brangwyn, one of the world's greatest mural painters.

While with Brangwyn, True assisted him with the large murals for the Missouri State Capitol building.

Allen True returned to his beloved Colorado from England. He married the former Emma Goodman Eaton June 3, 1915. They had four children. In 1934, they were divorced.

On November 9, 1955, Allen Tupper True died following a long illness.

During his long and distinguished career, Allen True took the time from his busy schedule to participate in public affairs. He was extremely active in the Denver Art Museum and was a pioneer in the movement to restore the Central City Opera House, where he helped restore the decorations. His studio in Denver was at 2393 Raleigh Street, near Sloans Lake.

Allen True was Art Consultant to the United States Bureau of Reclamation, in 1935. He directed the color schemes and decoration of the Hoover Dam project. He also laid out the color plans for Grand Coulee, Shasta and other Reclamation projects.

Honors awarded to Allen Tupper True include:

Fellowship in the Royal Society of Arts of England

Member of the Mural Painters of America Society

The American Federation of Arts gave him one man shows in 29 principal American cities.

Decoration Commission Missouri State Capitol 1913-1928

Member of Colorado Art Club

Art Consultant to U.S. Bureau of Reclamation

MURALS PAINTED BY ALLEN TUPPER TRUE

United States National Bank Building - 1932

Boulder Dam - 1935

Two murals in the offices of District and County Courts in City Hall, Denver

Eight murals in the rotunda of the Colorado State Capitol, presented by Claude K. Boettcher

Murals in four domes of the Missouri State Capitol Building in Jefferson City, Missouri

Eight murals in the Wyoming State Capitol Building in Cheyenne, Wyoming

Murals in the Toll Memorial in Denver Civic Center Greek Theatre

Murals in Voorhees Memorial in Denver Civic Center

Cosmopolitan Hotel

Brown Palace Hotel

Telephone Building, Denver

Business Administration Building of Denver University
Civic Center Campus

Colorado National Bank - Six groupings of murals
Indian memories

Denver University Memorial Center, Indian Grill
(Now installed in the Koshare Kiva at La Junta)

American Theatre, Denver

Continental Oil Building, Denver

Warren Branch - Denver Public Library

Dickinson Branch - Denver Public Library
Ten murals

University of Colorado - New Memorial Center

L & A Investments

1545 hooker st. 303 534 4201
denver colorado 80204

March 11, 1974

Mr. Jack Purdum
1322 Glencoe
Denver, Colorado

RE: Western Murals

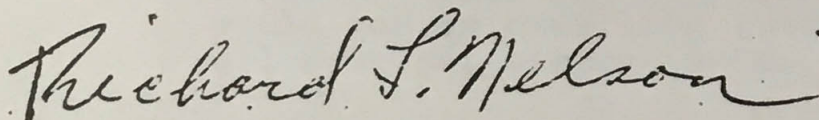
Dear Jack,

This is to follow up on our telephone discussion of today regarding the western murals (1913) by artist Allen True. I am enclosing two (2) copies of appraisals and brief descriptions of the three large canvas murals which are now in the final stages of restoration. These copies are for your use and/or personal review as you deem proper.

The canvas murals are all 11'-5" wide by 5"-6" high and are of a semi-circular shape. They are each mounted on a separate portable backer board 12"-0" wide by 6"-8" high. The restoration work is expected to be completed on or about March 21, 1974.

We are glad to have you stop in any time to see the murals or bring along anyone you wish. We appreciate your keen interest in our restoration work and in the work of this fine Colorado artist.

Sincerely,
L. & A. INVESTMENTS



Richard L. Nelson,
Vice-President

RLN/cm1

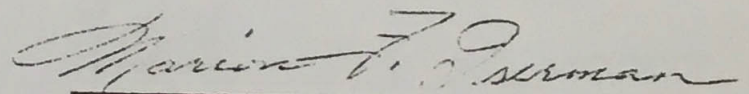
THE APPRAISAL

The mural "Miners" is an oil painting on canvas. It has been cleaned and restored and mounted on a permanent and portable backing. The painting shows early mining methods in the West. The costumes and details are authentic and correct historically. It was painted by Allen True in 1913 for the Dickinson branch of the Denver Public Library. The mural is arc shaped and is 11' wide by 5'6" high.

In evaluating the mural, I have considered the following facts:

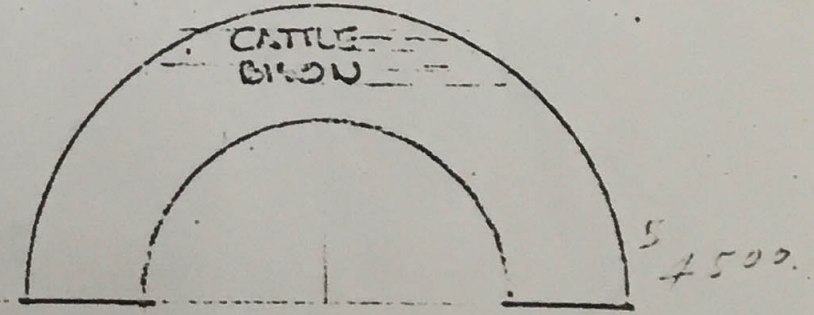
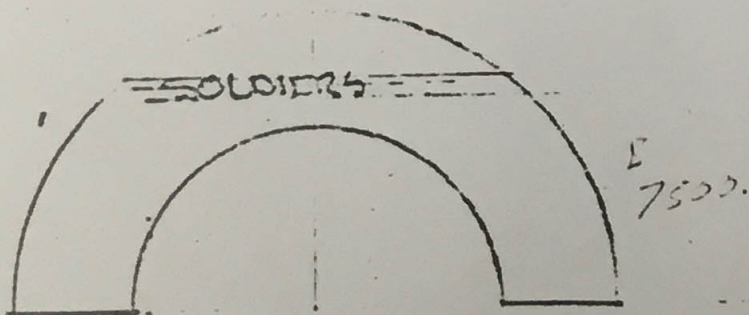
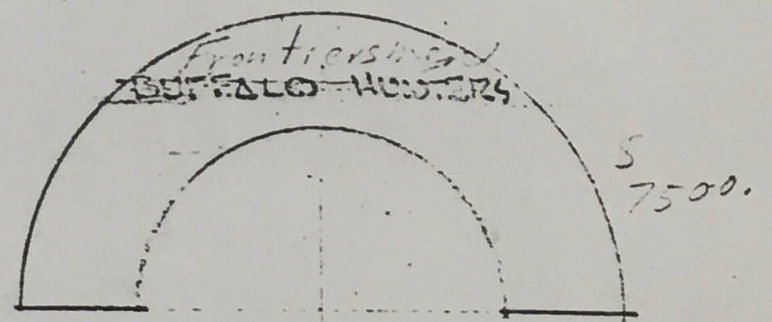
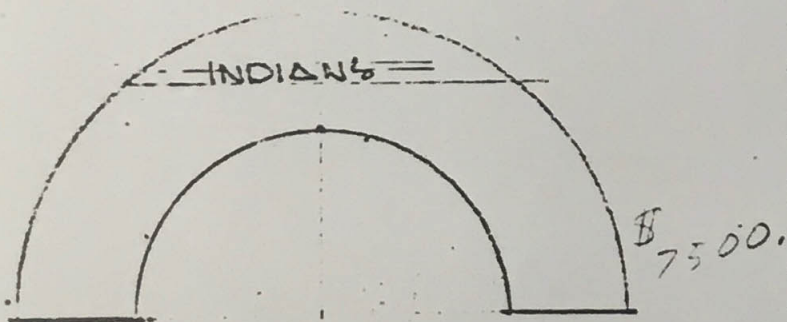
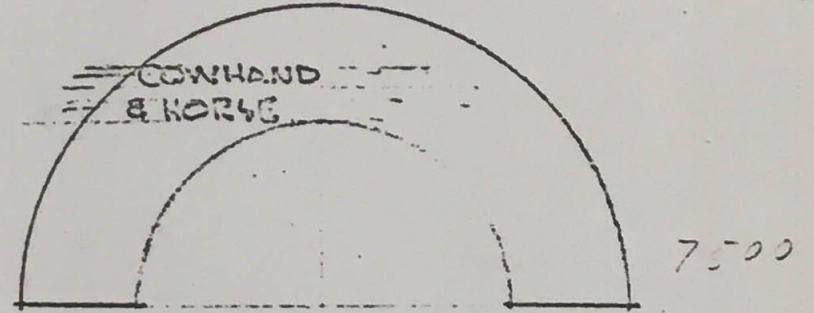
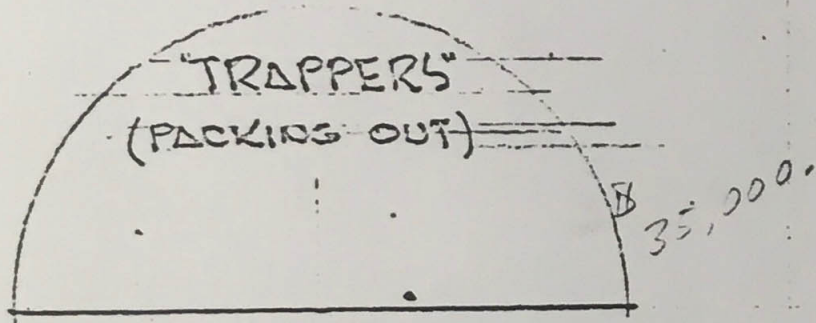
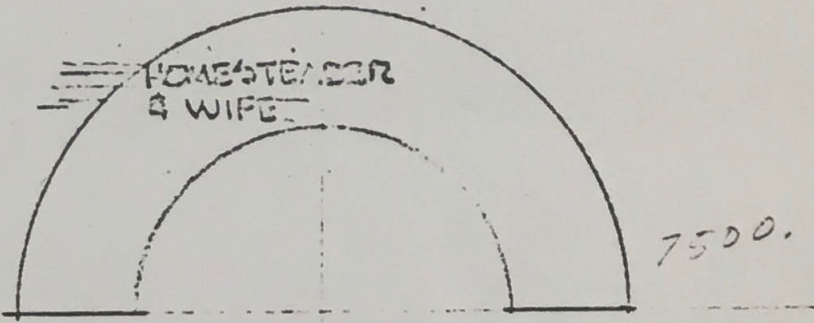
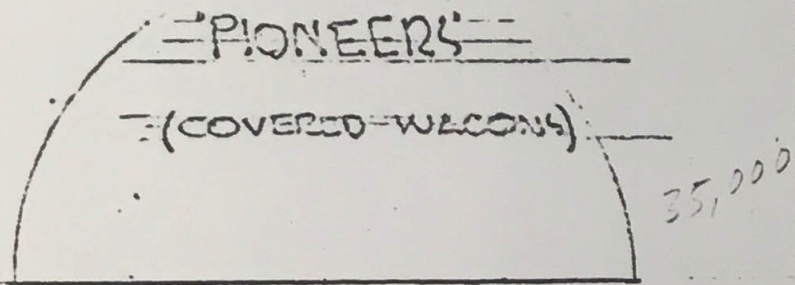
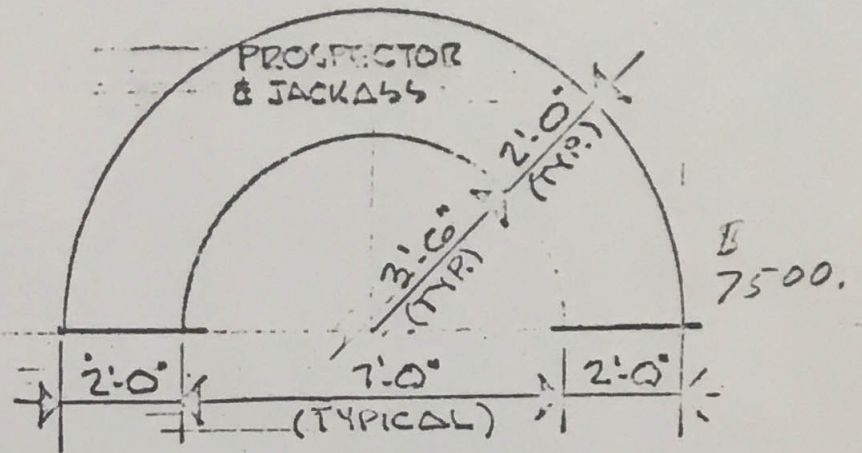
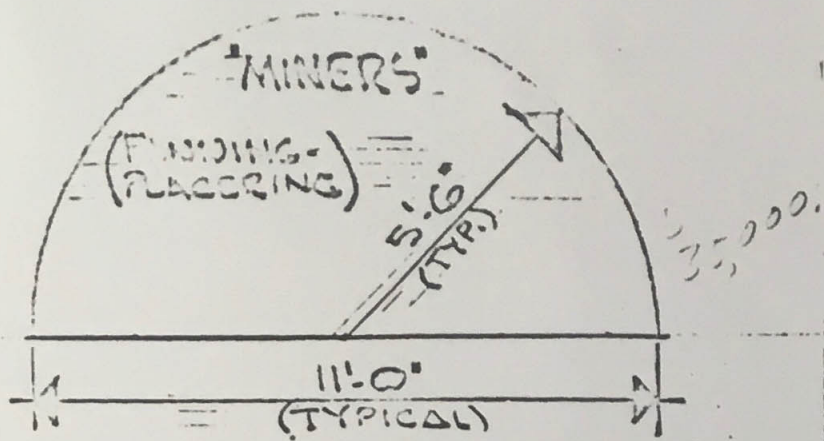
- (a) Allen True was an internationally known artist of great and recognized ability.
- (b) He had training under the finest mentors, Howard Pyle and Frank Brangwyn.
- (c) His murals are in many prominent and permanent buildings and locations, including three state capitol buildings, assuring lasting recognition of his work and reputation.
- (d) The paintings of his contemporaries and associates, Ernest l. Blumenschein, Oscar Berninghaus, N.C. Wyeth W. Herbert Dunton, Harvey Dunn and others are extremely valuable.
- (e) The mural is important historically and is of excellent composition and quality.
- (f) Allen True was a real native western artist and his work reflects the authentic spirit and nuances of the West that he knew so well. Interest in art of the West is now tremendous and becoming greater.

I consider \$35,000 as a fair market price for this mural. I define "fair market price" as what a willing buyer would pay to a willing seller, taking into consideration all revelant circumstances.



Marion F. Iserman
1548 So. Fairfax St.
Denver, Colorado 80222

February 21, 1973



INVENTORY • ALLEN TRUE, 1913 MURALS • 154.5 HOOKER
 L & A INVESTMENTS, 1544 HOOKER ST
 Total appraised value 154,500.

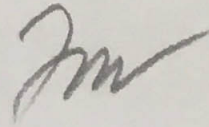
GARY HART
COLORADO

COMMITTEES:
ARMED SERVICES
PUBLIC WORKS

Colorado office:
1200 Williams
Denver, Co. 80218
837-4421

United States Senate

WASHINGTON, D.C. 20510



July 8, 1975

Mr. Frank Rhea
Facilities Project Manager
U.S. Mint at Denver
320 West Colfax
Denver, Colorado 80204

Dear Mr. Rhea:

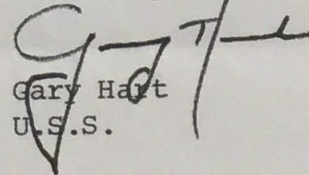
Enclosed please find a letter I received from my constituent, Thomas C. Christopher, concerning the future of the Denver Mint building.

I understand that you are in charge of both the construction of the new Mint and the preservation of the old site.

I have informed Mr. Christopher that his letter has been referred to you and would appreciate it if you would keep him informed of current plans for the building.

Thank you for your cooperation.

Sincerely yours,



Gary Hart
U.S.S.

Enclosure

REC'D APR 8 1975

DP

Jerry?

April 4, 1975

Honorable Gary W. Hart
United States Senate
Washington, D. C. 20510

Denver
make file

Dear Senator Hart:

As an Architect and citizen of the State of Colorado, I have a strong interest in the preservation of Colorado's architectural and historical heritage.

Now that a new Mint is to be constructed in Denver, there is a great deal of interest in what will happen to the present Mint site. Apparently the City of Denver is most eager to acquire the site for its use.

The present Mint is an important and irreplaceable part of Colorado's heritage that should be restored by the Government and preserved for the enjoyment of the people. All extensions and appurtenances that have been added to the original building should be removed and the building restored to its original condition inside and out. The existing wrought iron fence could be extended to enclose the entire site and the grounds landscaped in a manner that would enhance the building and vicinity.

The restored structure could possibly be used by the Government for the production of commemorative medals. If this is not practical, the restored site could be turned over to the Colorado State Historical Society to maintain and operate as a museum.

Restoration of the original Mint would be an endless reminder to citizens and visitors alike of Colorado's great history.

Should you agree with this concept, the people of Colorado would be indebted to you if you would exert your influence in making it become a reality. Your consideration of this matter is deeply appreciated.

Sincerely,

Thomas C. Christopher
THOMAS C. CHRISTOPHER
Architect

Star Route Box 100H
Littleton, Colorado 80120



TREASURY DEPARTMENT

UNITED STATES MINT

DENVER COLO. 80204

April 8, 1975

OFFICE OF SUPERINTENDENT

Mr. Thomas C. Christopher
Star Route Box 100H,
Littleton, Colo. 80120

Dear Mr. Christopher:

We appreciate your concern in the preservation of the present Mint site; we agree that it is an important and irreplaceable part of Colorado's history.

In August 1972 the Denver Mint building was designated as an Official Denver Landmark. It is listed in the National Register of Historic Places, maintained by the National Park Service, U. S. Department of the Interior.

Actual future utilization of the building has not been determined; however, because of the interest of the Landmark Preservation Commission of Denver, the building will not be razed or changed on the exterior.

Thank you for your letter. With citizens like yourself taking an interest, we will have a heritage for our children of which they can be proud.

Sincerely,

(Mrs.) Betty Higby
Superintendent

cc: Superintendent
Deputy Superintendent
Facilities Project Mgr.

April 4, 1975

Mrs. Betty Higby
Superintendent
U. S. Mint
W. Colfax Avenue and Cherokee
Denver, CO 80204

RECEIVED

APR 7 1975

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

Dear Mrs. Higby:

As an Architect and citizen of the State of Colorado, I have a strong interest in the preservation of Colorado's architectural and historical heritage.

Now that a new Mint is to be constructed in Denver, there is a great deal of interest in what will happen to the present Mint site. Apparently the City of Denver is most eager to acquire the site for its use.

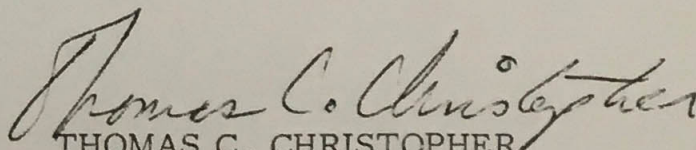
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Sincerely,


THOMAS C. CHRISTOPHER
Architect

MAY 5 1975

Dear Senator Haskell:

Thank you for your recent transmittal enclosing a letter from Mr. Thomas C. Christopher, who is concerned about the future preservation of the present Denver Mint.

We have received a number of other letters on the same subject from concerned citizens and groups, including the Colorado State Historical Society. We appreciate the interest in this historic structure expressed by these individuals and groups. As you are probably aware, the present Mint is listed in the National Register of Historical Places maintained by the National Park Service, and in August 1972, the building was designated as an Official Denver Landmark by the Colorado State Historical Society. All of this means that before any changes can be made to the present Mint, in accordance with the provisions of Executive Order 11593 of May 13, 1971, complete coordination must be effected with the National Advisory Council on Historic Preservation, the Colorado Historical Society and other interested groups and citizens. You may be assured that this coordination program has been of significant concern and attention throughout our planning on constructing a new Denver mint.

At this time we are unable to complete planning on the ultimate disposition of the present Mint because of uncertainties regarding the date of full operational effectiveness of the new mint. This is due in part to needed additional legislative actions, such as Congressional approval of the authorizing legislation for the new mint, as detailed in S. 1339, which you introduced in the Senate. Also, for this large, complex facility, our planning indicates that completion of design, construction and equipment installation will take approximately four years. Therefore, we are deferring any real decision on the ultimate use of the facility. One possible use we have in mind is for production of special coins and

Transmitted to Mr. MacDonald's Office, Bureau of the Mint, 5-15-75, @ 11:20 am.

commemorative medals, as discussed in the fourth paragraph of Mr. Christopher's letter.

Please assure Mr. Christopher that his letter will be kept on file and further consideration will be given to his suggestions when the time is ripe for a decision on this matter.

If we may be of further assistance, please be sure to let us know.

Sincerely yours,



Mary Brooks
Director of the Mint

The Honorable
Floyd K. Haskell
United States Senate
Washington, D. C. 20510

AUG 18 1972

The Honorable
Donald G. Brotzman
House of Representatives
Washington, D. C. 20515

Dear Mr. Brotzman:

Thank you for sending us copies of correspondence you have received from your constituent Mr. Jack Shapiro of Denver, Colorado. We certainly understand and appreciate Mr. Shapiro's concerns about the impact on his plans and operations of our provisional site selection along the South Platte for the new Denver Mint. Apparently our July 28 response to Mr. Shapiro's letter to Mrs. Brooks must have crossed in the mail with respect to his letter to you of August 2. A copy of our July 28 letter to Mr. Shapiro is attached. As you read it you will see that it explains the current status of the provisional site acquisition as well as this can be defined at this time.

We have also talked with Mr. Shapiro in Denver since his letter to you and will make available to him a copy of the draft Environmental Impact Statement which has recently been released for the new Mint on the South Platte site. A copy of this draft statement is also attached to this letter for your information.

We believe from our conversations with Mr. Shapiro that he understands our current situation. We have agreed to keep him informed through the best of our ability as actions go forward with respect to the provisional resolution of financial, legal, engineering as well as the environmental considerations which must be dealt with before a final decision on the South Platte site can be concluded by the responsible officers of this Department.

Again we appreciate your interest in this important matter and you may be certain that we will make every effort to keep you posted as to important developments.

Very truly yours,

(Signed) F. H. MacDonald

Mary Brooks
Director of the Mint

Attachments

cc: Mr. Rhea/Denver Mint

AP, RRFredlund:ldf

8/18/72

THE DEPARTMENT OF THE TREASURY
BUREAU OF THE MINT

August 14, 1972

Mr. Frank W. Rhea
Facilities Project Manager
United States Mint
Denver, Colorado

Frank:

Coordinate answer with

Bob Fredlund.


F.H. MacD.

Attachment

Cong. Brotzman 8/8
letter, w/8/2 letter
fm Jack Shapiro, KWAL
Paints, Inc., Denver.

F. H. MacDonald

Room 2064

Ext. 5877

THE DEPARTMENT OF THE TREASURY
BUREAU OF THE MINT

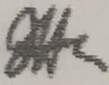
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United States Mint
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Attachment

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letter, w/8/2 letter
fm Jack Shapiro, KWAL
Paints, Inc., Denver.

F. H. MacDonald

Room 2064

Ext. 5877

DONALD G. BROTZMAN
2nd District, Colorado

MEMBER
COMMITTEE ON SELECT AND MEANS

BOARD OF VETERANS
U.S. AIR FORCE ACADEMY

HOUSE REPRESENTATIVE TASK FORCE
ON ENERGY AND RESOURCES

HOUSE REPRESENTATIVE TASK FORCE
ON TRANSPORTATION

HOUSE REPRESENTATIVE TASK FORCE
ON NATIONAL HEALTH

Congress of the United States
House of Representatives
Washington, D.C. 20515

WASHINGTON OFFICE
613 Cannon Building
Washington, D.C. 20540
Telephone: (202) 225-2147

DISTRICT OFFICE
BUILDING 46, ROOM 202
Denver Federal Center
Denver, Colorado 80202
Telephone: (303) 556-4022

225 HANCOCK BUILDING
1700 17th Street
Boulder, Colorado 80501
Telephone: (303) 440-2122

August 8, 1972

Mrs. Mary Brooks
Director
Bureau of the Mint
Department of Treasury
15th and Pennsylvania Avenue
Washington, D. C.

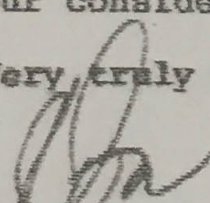
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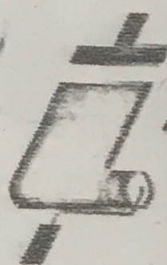
It would be greatly appreciated if you could provide me with the information Mr. Shapiro needs on the location of the new mint in Denver.

Thank you in advance for your consideration.

Very truly yours,

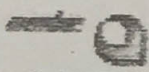

Donald G. Brotzman
Member of Congress

DGB/vh
enclosure



KWAL PAINTS, INC.

manufacturers, retailers, distributors
paint/wallcoverings/protective coatings
P.O. BOX 5231 / 1800 WATER ST. / DENVER, COLORADO 80217


COLOR GUILD ASSOCIATES
NATIONAL PAINT & COATINGS ASSOCIATION

Hon. Donald Brotzman, M.C. 303/465-4793
413 House Office Building
Washington, D.C. 20515

August 2, 1972

Dear Don,

We are appealing to you for assistance in a matter that has become very critical to the future of our business.

The factory, warehouse and general offices of KWAL Paints, Inc. is located within the 33 acres along the west bank of the South Platte River included in the site unofficially designated for the proposed new Denver Mint.

After innumerable attempts to authenticate the actuality of the site designation, we have been completely unable to obtain a positive commitment from any of the local or federal agencies involved in this project validating the fact that our property will be acquired by either the City of Denver or General Services Administration.

Herein lies the frustration! We are anxious to know when and under what circumstances we will be forced to relocate. We have had informal discussions with the Small Business Administration and have received verbal tentative approval of SBA loan assistance. We have researched the available real estate in the metro area suitable for a new plant. However, we cannot consummate any kind of a property deal until we know specifically what is included in the Treasury Department land acquisition provisions.

Pressure from another source is adding to this problem. We must make certain physical changes in our factory facility to conform to the requirements of the new Occupational Safety and Health Act (OSHA). These requirements represent a substantial investment in machinery and equipment. We are willing and anxious to make this investment, but are reluctant to do so at our present location if we will soon be forced to move. Our new factory and warehouse complex will be designed to meet and exceed the OSHA specifications. It seems to be an unwise investment of capital if we must spend money twice for the same purpose.

In the hearings before the Subcommittee of the Committee on Appropriations, House of Representatives for Treasury, Postal Service and General Government Appropriations for Fiscal Year 1973, Mr. William L. Dickey, Deputy Assistant Secretary of the Treasury; Mrs. Mary Brooks, Director of the Mint and Frank M. McDonald, Deputy Director of the Mint, announced the preference for the Platte River site on March 22, 1972. This was subsequently announced in the press along with an appropriation of \$1.5 million for land acquisition.

* subsequently

you are aware of the involvement of the City of Denver in this land transaction which incorporates the 13 acres containing the city equipment yards. Conversations with this company and Messrs. John Henry and Ben Bezoff, administrative assistants to Mayor McNichols; and Mr. Don Bishop, chief property appraiser for the City of Denver, have told us little about the specifics and timetable for the relocation plan. We have spoken with Messrs. Miller and Rhea at the Denver Mint and learned little more. Our letter to Mrs. Brooks remains unanswered.

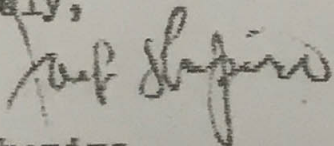
In mid-July the Treasury Department announced the appropriation of \$2 million for architectural and engineering work for the new Denver Mint. General Services Administration selected a contractor for this project. Earlier this year the Corps of Engineers conducted soil testing on this South Platte River site. All indications point toward the fact that the Mint will be built in this area, but nobody will actually say so officially. Our repeated contacts with all agencies involved with this project have failed to give us any definitive information about a formal commitment. The uncertainties related to this nebulous speculation have only increased our concern. We must learn something soon...the frustration is unbearable!

It is our intention to be completely cooperative with the various agencies involved in this project, but the uncertainty and the threat of OSHA enforcement hangs heavy over our heads. We will relocate immediately, if only we can receive a firm commitment of the designation of our property for use by the Treasury Department. SBA requires a written document acknowledging the necessity of this relocation. Without it we are forced to flounder! The continuing increases in land costs makes the necessity of an early move a matter of sound economics. The longer we are forced to wait, the more it will cost us!

KWAL Paints, Inc. was founded in 1946 with a handful of employees and has grown to become the largest Colorado-owned paint manufacturing facility in the State. In order for us to continue with our expansion plans, we must solve the problems resulting from the uncertainty created by our inability to know when and where we will relocate.

Please assist us in any way possible so that we can resolve this frustrating question.

Sincerely,



Jack Shapiro
Chairman of the Board
KWAL PAINTS, INC.

DONALD G. BROTZMAN
2nd DISTRICT, COLORADO

MEMBER
COMMITTEE ON WAYS AND MEANS

BOARD OF VETERANS,
U.S. AIR FORCE ACADEMY

HOUSE REPUBLICAN TASK FORCE
ON ENERGY AND RESOURCES

HOUSE REPUBLICAN TASK FORCE
ON TRANSPORTATION

HOUSE REPUBLICAN TASK FORCE
ON NATIONAL HEALTH

Congress of the United States
House of Representatives
Washington, D.C. 20515

WASHINGTON OFFICE
412 CARMER BUILDING
WASHINGTON, D.C. 20515
TELEPHONE: (202) 225-2151

DISTRICT OFFICE:
BUILDING 40, ROOM 202
EDGEMOOR FEDERAL CENTER
DENVER, COLORADO 80221
TELEPHONE: (303) 234-2222

222 HUNTINGTON BUILDING
1200 15TH STREET
DENVER, COLORADO 80202
TELEPHONE: (303) 444-5222

August 8, 1972

Mrs. Mary Brooks
Director
Bureau of the Mint
Department of Treasury
15th and Pennsylvania Avenue
Washington, D. C.

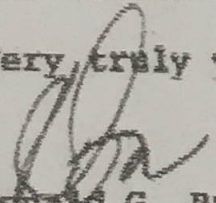
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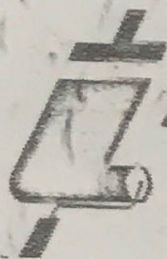
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Member of Congress

DGB/vh
enclosure



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COLOR GUILD ASSOCIATES
NATIONAL PAINT & COATINGS ASSOCIATION

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413 House Office Building
Washington, D.C. 20515

August 2, 1972

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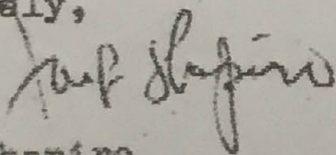
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Sincerely,



Jack Shapiro
Chairman of the Board
KWAL PAINTS, INC.

File

*Congressional
Correspondence*

May 15, 1972

Dear Mr. Monagan:

This letter is in response to a telephone call from Miss Grickis, requesting more detailed information for you regarding the new mint to be constructed in the City of Denver, Colorado. As you may recall, my letter of April 28, 1972, provided information pertaining to the site for this facility and the status of the selection of an Architectural-Engineering firm for design of the project.

Enclosed are copies of the project description for the new Denver Mint. The specific functions and production parameters detailed in the project description have been developed after thorough analysis and planning by the Treasury Department during the last three years. The specific criteria for the new mint will be reviewed and analyzed further by the design Architect-Engineer firm as the basic first step in the design process.

The General Services Administration is continuing with their process of selecting an Architect-Engineer firm, and final selection is expected in June of this year, as reported in my letter of April 28.

I trust this information will be helpful to you and is responsive to your request for more specifics. If there is anything further in this regard, please let me know.

Sincerely,

(Signed) F. H. MacDonald

F. H. MacDonald
Deputy Director of the Mint

The Honorable
John S. Monagan
House of Representatives
Washington, D. C. 20515

Enclosures

Note: May 16, 1972 - Mint delivered
letter to Cong. Monagan's office

cc: Mr. Rhea
Mr. Cahoon

FWD:bcc:mb

Director of the Mint
Washington, D. C. 20220

5/2
2:40

Mr. MacDonald:

Mr. Monaghan's office called re your
letter concerning Mint facilities (dtd April 28) —
Congressman Monagan would like to have more
detailed information (specifics).

return call

[Please/telephone per DOT)

Miss Grickis
180/3822

DOT

Mary Brooks

PROJECT DESCRIPTION

The new Denver Mint will be primarily an industrial/manufacturing facility with the mission of producing domestic coins ranging in denomination from 1¢ through 1\$, plus some production of proof coins and medals. The Mint will perform essentially all functions involved in coin production, starting with the receipt of virgin metal and proceeding through the flow process steps to the production, storage, and shipment of finished coins and medals. Necessary administrative and production support space and facilities are to be included in the Mint, including the accommodation of public visitors.

The following specific functions/space requirements are to be included in the new Denver Mint:

(a) Basic Functions

Melting and casting, ingot hot rolling, scarfing, strip intermediate rolling, strip finish rolling, strip slitting, blanking, cleaning and annealing, blank upsetting, coining, counting and bagging, and coin storage.

(b) Direct Support Functions

Assay and quality control, die production from the Hub stage, building and production equipment maintenance and repair, shipping and receiving (coinage metal, coins, and supplies) and warehousing.

(c) Administrative Support Functions

Mint Staff (Superintendent and Deputy Superintendent, Accounting and ADP, Personnel, Supply and Purchasing, Safety and Security), visitors gallery, numismatic sales, cafeteria, conference rooms and training areas, vehicle parking (employees and visitors), and other miscellaneous office space.

The new Denver Mint is to be designed and constructed to meet the following production parameters:

(Notes: (1) Based on 2 shifts per day, 5 days per week, 240 days per year.

(2) The facility will be planned to provide for maximum reasonable expandability.)

(a) Domestic coins - 7.7 billion coins per year, ranging from 1¢ to 1\$, of which 7.0 billion will be pennies.

(b) Proof coins and medals - 35 million per year.

(c) Melting and casting - produce ingots for concurrent annual production of 9 billion bronze 1¢ coins and 1.5 billion cupro-nickel 5¢ coins. (This process will be operated three shifts per day.)

(d) Strip preparation - annual production of strip for 9 billion bronze 1¢ coins and 1.5 billion cupro-nickel 5¢ coins.

(e) Blanking and coining - annual production as per paragraphs (a) and (b) above.

(f) Strip bonding - will not be included initially, but provisions for future addition of strip bonding facility will be included.

Based upon the production parameters and the direct, support and administrative functions listed above, preliminary planning to date indicates that the new Denver Mint will require a site with a minimum of 25 acres, building space of approximately 500,000 square feet, and parking for about 1,000 private automobiles. The estimated total cost of the new Denver Mint (exclusive of architect-engineer services, site acquisition costs and start-up and run-in costs) is \$45-50 million, of which approximately \$20-25 million is for procurement and installation of production equipment.

April 28, 1972

Dear Mr. Monagan:

Thank you for your letter concerning the construction of a Mint facility in Denver.

Plans are currently underway to construct a new Mint in the City of Denver, Colorado. The selection of the site for this new Mint was announced recently by the Mayor of Denver. There were various specifications to be considered in the site selection and, following consultations between the Treasury, the General Services Administration and Denver city officials, the land along the west bank of the South Platte River in the City of Denver was selected as being suitable for the new Mint and fully compatible with the city's interests.

The General Services Administration has begun their procedure for selection of an Architectural-Engineering firm for this project. Final selection is expected by June of this year.

We appreciate your interest in the plans for the new Denver Mint and trust this information will be helpful to you. If there is anything further in this regard, please let us know.

Sincerely,

(Signed) F. H. MacDonald

F. H. MacDonald
Acting Director of the Mint

The Honorable
John S. Monagan
House of Representatives
Washington, D. C. 20515

Xcc: Mr. Cahoon

JOHN S. MONAGAN
9TH DISTRICT, CONNECTICUT

2531 RAYBURN OFFICE BUILDING
TELEPHONE 202-425-3622

DISTRICT OFFICE:
205 POST OFFICE BUILDING
WATERBURY, CONNECTICUT 06720
TELEPHONE 203-754-2424

DEMOCRATIC STEERING COMMITTEE
ZONE ONE

Congress of the United States
House of Representatives
Washington, D.C. 20515

COMMITTEES
GOVERNMENT OPERATIONS
CHAIRMAN—LEGAL AND MILITARY AFFAIRS
GOVERNMENT ACTIVITIES

FOREIGN AFFAIRS
EUROPE
INTER-AMERICAN AFFAIRS
NEAR EAST

April 12, 1972

Mr. Roy Cahoon
Assistant Director of The Mint
Department of the Treasury
Room 1422
Washington, D. C.

Dear Mr. Cahoon:

It is my understanding that the U. S. Mint plans to build a new Casting and Rolling Facility in Denver.

I would be grateful if you would provide me with a status report on this project and keep me advised of any developments concerning this matter. Thank you for your cooperation and assistance.

Sincerely yours,

John S. Monagan

JOHN S. MONAGAN
Member of Congress

JSM:ai

May 11, 1972

Honorable John S. Monagan
House of Representatives
2331 Rayburn Office Building
Washington, D. C. 20515

Dear Mr. Monagan:

This letter is in response to a telephone call from Miss Grickis requesting more detailed information for you regarding the new mint to be constructed in the City of Denver, Colorado. As you may recall, my letter of April 28, 1972, provided information pertaining to the site for this facility and the status of the selection of an Architectural-Engineering firm for design of the project.

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Sincerely,

F. H. MacDonald
Deputy Director of the Mint

cc: Mr. R. Cahoon

Director of the Mint
Washington, D. C. 20220

5/2
2:40

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letter concerning Mint facilities (dtd April 28) —
Congressman Monagan would like to have more
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return



[Please/telephone per DOT)

Miss Grickis
180/3822

DOT

Mary Brooks

April 28, 1972

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Plans are currently underway to construct a new Mint in the City of Denver, Colorado. The selection of the site for this new Mint was announced recently by the Mayor of Denver. There were various specifications to be considered in the site selection and, following consultations between the Treasury, the General Services Administration and Denver city officials, the land along the west bank of the South Platte River in the City of Denver was selected as being suitable for the new Mint and fully compatible with the city's interests.

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Sincerely,

(Signed) F. H. MacDonald

F. H. MacDonald
Acting Director of the Mint

The Honorable
John S. Monagan
House of Representatives
Washington, D. C. 20515

Xcc: Mr. Cahoon

FHMacDonald:mb

5TH DISTRICT, CONNECTICUT

2531 RAYBURN OFFICE BUILDING
TELEPHONE 202-225-3522

DISTRICT OFFICE:
209 POST OFFICE BUILDING
WATERBURY, CONNECTICUT 06720
TELEPHONE 203-754-2424

DEMOCRATIC STEERING COMMITTEE
ZONE ONE

Congress of the United States
House of Representatives
Washington, D.C. 20515

COMMITTEES:
GOVERNMENT OPERATIONS
CHAIRMAN—LEGAL AND MONETARY AFFAIRS
GOVERNMENT ACTIVITIES
FOREIGN AFFAIRS
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INTER-AMERICAN AFFAIRS
NEAR EAST

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Assistant Director of The Mint
Department of the Treasury
Room 1422
Washington, D. C.

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Sincerely yours,

John S. Monagan
JOHN S. MONAGAN
Member of Congress

JSM:ai



THE DEPARTMENT OF THE TREASURY

WASHINGTON, D.C. 20220

OFFICE OF

DIRECTOR OF THE MINT

May 20, 1975

Ralph W. Sherman
Oblinger-Smith Corporation
1221 University Building
Denver, Colorado 80202

Dear Mr. Sherman:

Congresswoman Patricia Schroeder has asked me to write directly to you in response to your letter to her of May 14 regarding providing professional design services for the new Denver Mint.

As you may know, the Secretary of the Treasury is required by law to act through the Administrator of General Services in accomplishing the design and construction of facilities for the Bureau of the Mint. Accordingly, we in the Mint have been working on the new Mint project for some time with GSA Region 8, located at the Denver Federal Center. In anticipation of Congressional approval of authorizing and funding legislation, GSA and the Treasury Department initiated action in 1973 to select an architect-engineer firm for the professional services required. The culmination of this action was the selection by GSA and the Treasury Department, in July 1973, of the firm of DMJM - Phillips/Reister Inc. to provide the design services. A design contract has been negotiated with DMJM - Phillips/Reister. This principal firm and most of the consultant specialists making up the design team are Denver based.

It is possible that future requirements may necessitate selection of other professional service firms for work on this important undertaking. It is suggested that, if you are interested in obtaining work pertaining to the new Mint, or other Federal projects, you file a Form 251 with the GSA Region 8 Commissioner of Public Building Services. The Commissioner's address is: GSA Region 8, Building 41, Denver Federal Center, Denver, Colorado, 80225.

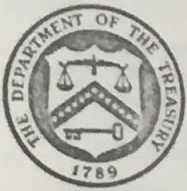
Sincerely,

Frank W. Rhea
Facilities Project Manager
Bureau of the Mint
Denver Mint
320 W. Colfax Ave.
Denver, Colorado 80204

cc: Congresswoman Patricia Schroeder



Keep Freedom in Your Future With U.S. Savings Bonds



THE DEPARTMENT OF THE TREASURY

WASHINGTON, D.C. 20220

OFFICE OF

DIRECTOR OF THE MINT

May 20, 1975

Ralph W. Sherman
Oblinger-Smith Corporation
1221 University Building
Denver, Colorado 80202

Dear Mr. Sherman:

Congresswoman Patricia Schroeder has asked me to write directly to you in response to your letter to her of May 14 regarding providing professional design services for the new Denver Mint.

As you may know, the Secretary of the Treasury is required by law to act through the Administrator of General Services in accomplishing the design and construction of facilities for the Bureau of the Mint. Accordingly, we in the Mint have been working on the new Mint project for some time with GSA Region 8, located at the Denver Federal Center. In anticipation of Congressional approval of authorizing and funding legislation, GSA and the Treasury Department initiated action in 1973 to select an architect-engineer firm for the professional services required. The culmination of this action was the selection by GSA and the Treasury Department, in July 1973, of the firm of DMJM - Phillips/Reister Inc. to provide the design services. A design contract has been negotiated with DMJM - Phillips/Reister. This principal firm and most of the consultant specialists making up the design team are Denver based.

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Sincerely,

Frank W. Rhea
Facilities Project Manager
Bureau of the Mint
Denver Mint
320 W. Colfax Ave.
Denver, Colorado 80204

cc: Congresswoman Patricia Schroeder



Keep Freedom in Your Future With U.S. Savings Bonds

PATRICIA SCHROEDER
1ST DISTRICT, DENVER, COLORADO

ARMED SERVICES COMMITTEE

POST OFFICE AND CIVIL
SERVICE COMMITTEE

Congress of the United States
House of Representatives
Washington, D.C. 20515

DISTRICT OFFICE:
DENVER FEDERAL BUILDING
1767 HIGH STREET
DENVER, COLORADO 80218
(303) 837-2354

WASHINGTON OFFICE:
1131 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, D.C. 20515
(202) 225-4431

May 15, 1975

Frank Rhea
Facilities Project Manager
U.S. Mint
320 W. Colfax Ave.
Denver, CO 80204

Dear Mr. Rhea:

I am writing to you on behalf of Ralph W. Sherman, Director of the Denver Office of the Oblinger-Smith Corporation, who has inquired of my office about a matter in your jurisdiction. I have enclosed his letter and the attached brochures for your convenience.

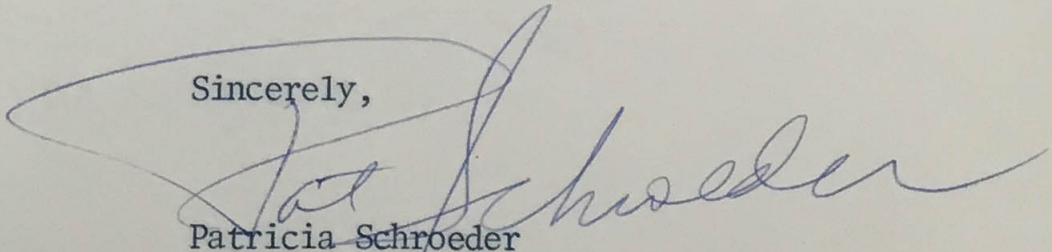
I would appreciate your providing Mr. Sherman with the information necessary for his corporation to bid on the site planning and landscape architectural design of the new Mint. Please respond directly to Mr. Sherman on this matter.

I agree wholeheartedly with Mr. Sherman's statement that contracts should be awarded to as many local businesses as possible in the planning and construction of the new Mint. Not only is this important economically to Denver, which, after all, will provide many necessary services to the facility, but also I believe that local planners and contractors, because of their expert knowledge of the Denver area, will design and construct a facility more integrated into the Denver metropolitan area.

I would appreciate your sending your comments on this matter to me at my Denver District Office.

With kind regards,

Sincerely,



Patricia Schroeder
Member of Congress

PS:mr
Encl.
cc: Ralph W. Sherman



oblinger-smith corporation

May 14, 1975

Honorable Patricia Shroeder
United States Congress
1767 High Street
Denver, Colorado 80218

Dear Congresswoman Shroeder:

Enclosed you will find a copy of Oblinger-Smith Corporation's brochure serving as an introduction to our organization. Our firm is interested in being considered for providing professional services relating to site planning and landscape architectural design for the Denver Mint. Oblinger-Smith Corporation has been providing professional services of this type within the State of Colorado for the past four years through our Denver office. We have full capabilities for planning all site development and landscape architectural design.

In the past, our preference has been in working on a team approach with the building Architect. We find the efficiency of this process results in greater coordination and a more practical approach with the final product indicative of the interaction of various design disciplines.

We realize that the implementation of the Denver Mint project is a few years away. We, however, feel that the present is time to make ourselves and our capabilities known to the proper officials with the anticipation, of course, that at the critical time, we would be considered as a consulting firm qualified and eligible for submitting a proposal for professional services.

Moreover, we feel that as local businessmen, we would prefer that fees expended for planning and design of this new facility be allocated to enhance the Denver area economy rather than going to consultants outside of Colorado. In addition, we believe that a firm with local roots can provide more comprehensive services; being fully aware of local climatic, horticultural, engineering and particularly political conditions and requirements.

	625 First National Bank Bldg.,	Wichita, Kansas 67202	/	AC 316 262-0451
Consultants in Planning, Design & Development	1221 University Bldg.,	Denver, Colorado 80202	/	AC 303 573-1880
	4948 Cherry,	Kansas City, Missouri 64110	/	AC 816 756-0256
	Quadrangle 232, 2800 Routh,	Dallas, Texas 75201	/	AC 214 748-4112

Honorable Patricia Shroeder

May 14, 1975

Page 2

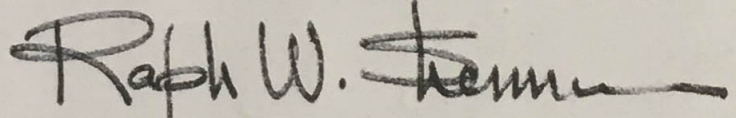
We request your effort as our representative to see that local professionals be given first priority in the selection of consultants for the Denver Mint facility. We, of course, would like to be considered as one of those firms and would appreciate your direction in recommending the agency to which our credentials should be submitted.

Should you have the opportunity to speak with State Senator Joseph Shoemaker, and we believe his knowledge of our capabilities would be a good recommendation for Oblinger-Smith Corporation. We have been associated with him over the past year in his capacity as Chairman of the Platte River Development Committee. Oblinger-Smith was selected as one of four consultants to design and develop a segment of Denver's Platte River beautification project and have recently been designated as one of two consultants to provide professional design services for the final reaches of the River.

Should your schedule permit, we would enjoy the opportunity to visit with you to personally describe our qualifications and to better understand your responsibilities relative to the Denver Mint project.

Sincerely,

OBLINGER-SMITH CORPORATION

A handwritten signature in dark ink, appearing to read "Ralph W. Sherman", with a long horizontal flourish extending to the right.

Ralph W. Sherman
Director, Denver Office

RWS/kmy
Enclosure

Congressional Correspondence File

Bureau of Mint Transactions & Proposal File

UNITED STATES GOVERNMENT

Memorandum

TO : Carole Foryst
Staff Assistant to the Secretary

DATE: AUG 21 1974

FROM : Frank H. MacDonald
Deputy Director of the Mint

SUBJECT: Updated Briefing Material for Department Officials

As requested in telecon with Mr. Arnold Bresnick of this office, enclosed are four copies of updated briefing material for Department officials.

Attachments

RECEIVED

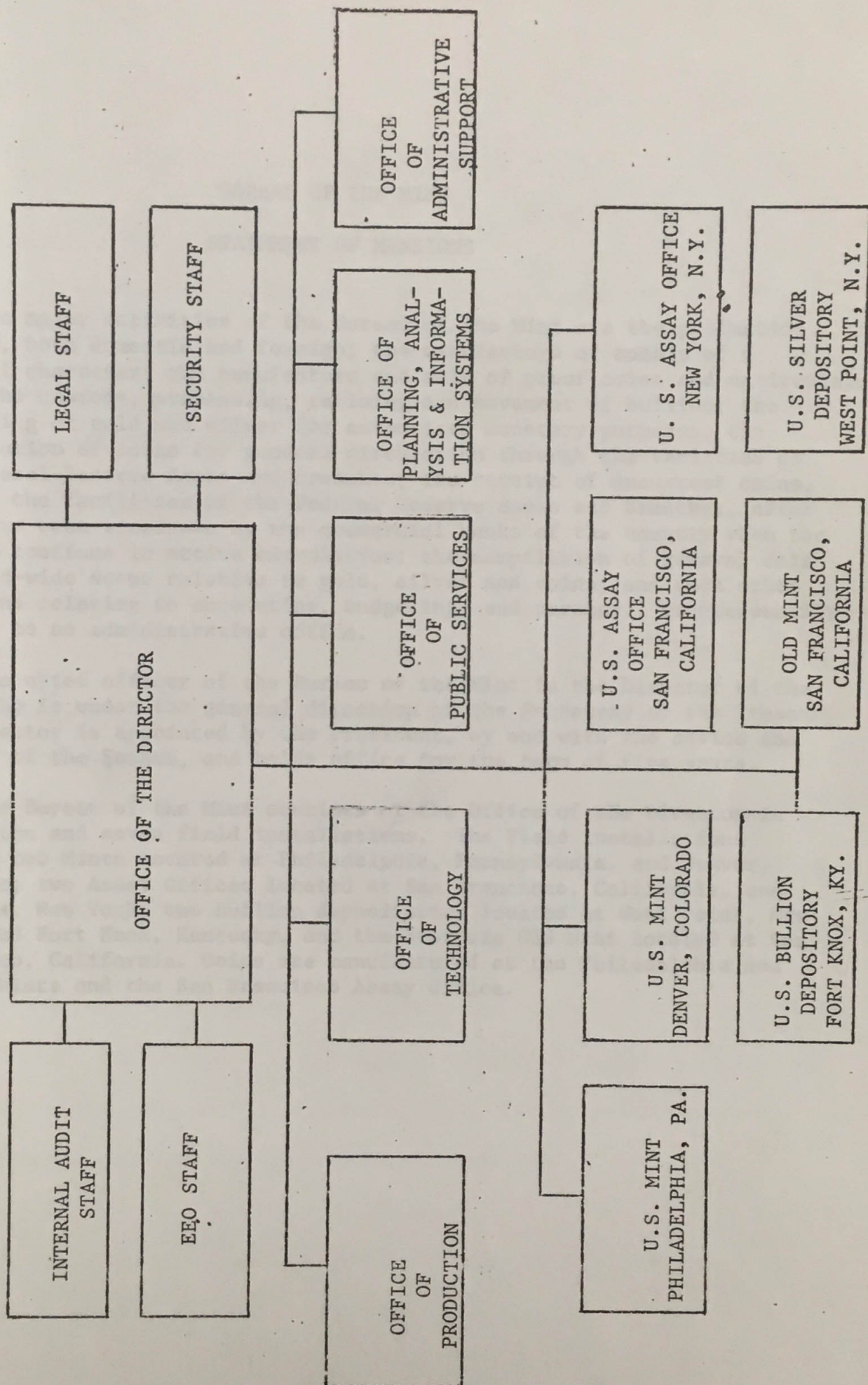
AUG 23 1974

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER



BUREAU OF THE MINT
DEPARTMENT OF THE TREASURY
WASHINGTON, D. C. 20220

AUGUST 18, 1974



BUREAU OF THE MINT

STATEMENT OF MISSIONS

The major activities of the Bureau of the Mint are the production of coin, both domestic and foreign; the manufacture of medals of a national character; the manufacture and sale of proof coins and uncirculated sets; the custody, processing, refining and movement of bullion; the disbursing of gold and silver for authorized monetary purposes; the distribution of coins for general circulation through the facilities of the Federal Reserve Banks and branches; the receipt of uncurrent coins, through the facilities of the Federal Reserve Banks and branches, after they have been withdrawn by the commercial banks of the country when too worn to continue in active circulation; the compilation of general data of world-wide scope relative to gold, silver and coins; and such other functions relating to accounting, budgeting, and personnel as necessarily pertain to an administrative office.

The chief officer of the Bureau of the Mint is the Director of the Mint, who is under the general direction of the Secretary of the Treasury. The Director is appointed by the President, by and with the advice and consent of the Senate, and holds office for the term of five years.

The Bureau of the Mint consists of the Office of the Director in Washington and seven field installations. The field installations include two Mints located at Philadelphia, Pennsylvania, and Denver, Colorado; two Assay Offices located at San Francisco, California, and New York, New York; two Bullion depositories located at West Point, New York, and Fort Knox, Kentucky, and the historic Old Mint located at San Francisco, California. Coins are manufactured at the Philadelphia and Denver Mints and the San Francisco Assay Office.

FUNCTIONAL STATEMENTS

OFFICE OF THE DIRECTOR

Establishes the general policies and directs the activities of the Mint field institutions in the production of coin, both domestic and foreign; the manufacture of medals of a national character; the manufacture and sale of proof coins and uncirculated set; the distribution of domestic coin; the custody, processing, refining and movement of bullion; the compilation of general data of world-wide scope relative to gold, silver, and coins; and performs such other functions relating to accounting, budgeting, and personnel as necessarily pertain to a central administrative office.

INTERNAL AUDIT STAFF

Provides independent evaluation of operating programs, policies and procedures from the standpoint of effectiveness, economy, and efficiency. This evaluation extends to all activities of the Mint.

EEO STAFF

Responsible for the development and implementation of the Mint-wide EEO action plan. Investigates discrimination complaints filed by employees and resolves in accordance with Department of the Treasury procedures and the regulations of the Civil Service Commission.

LEGAL STAFF

Provides legal services, advice, and counseling to the Director of the Mint and to other responsible officials of the Bureau.

SECURITY STAFF

Responsible for planning, directing, developing, coordinating, inspecting, and prescribing security practices, methods, and regulations for the physical protection of Mint personnel, monetary assets, and facilities. Coordinates and directs the Mint's Personnel Security Program.

OFFICE OF PRODUCTION

Responsible for all production programs. This includes production planning, scheduling, and control of all domestic and foreign coins, proof and uncirculated coin sets; the manufacture of production dies and collars for coins and medals; the refining of gold and silver and other precious metals; the inventory control of coinage metals and the distribution of coin.

OFFICE OF TECHNOLOGY

Responsible for technical direction of assaying in field installations; equipment and facility evaluation programs; directs Research & Development Program; prepares technical provisions for procurements; directs on-going program of Quality Standards and Quality Control; provides for the testing of questioned coins.

OFFICE OF PUBLIC SERVICES

Responsible for all public information matters; serves as liaison with Federal Banks and foreign governments; serves as liaison on reimbursable programs both self-generated and those initiated by outside sources.

OFFICE OF PLANNING, ANALYSIS AND INFORMATION SYSTEMS

Responsible for overall organization and management planning, improvement, analysis and manpower utilization; emergency preparedness and energy conservation; paperwork management including Central files; planning and evaluation to include productivity measurement and MBO programs; ADP systems and planning; operation of the computer service center for the Bureau which includes payroll functions; safety and health programs and environmental compliance.

OFFICE OF ADMINISTRATIVE SUPPORT

Responsible for overall control of financial matters for all phases of operations; develops and administers a fully implemented personnel program; prepares and awards contracts for the purchase of materials and equipment; provides administrative support services such as property management and mail-messenger service.

MAJOR PROGRAM AREAS

1. Manufacture of coins (domestic). The manufacture of domestic coins is the major activity of the Mint. Coins are ordered from the Mint by the Federal Reserve Banks in quantities required for the Country's business transactions. Thus, the volume of the coinage program is determined by the public need for coins. In Fiscal Year 1974, a total of 10.4 billion coins were produced: 5.0 billion at the Philadelphia Mint, 5.1 billion at the Denver Mint and .3 billion at the San Francisco Assay Office.
2. Processing deposits and issues of monetary metals and coins. The Deposit Activity includes the receipt of gold and silver bullion, moving, shipping storing and verifying bullion and coins; and receipt and verification of uncurrent coin.
3. Protection of monetary metals and coins. The Bureau of the Mint is responsible for physical custody of the Government's stock of gold and silver bullion and coin, amounting to approximately \$12 billion, located at six different Mint institutions. Continuous protection must be maintained in each of these institutions twenty-four hours per day, every day of the year.
4. Refining gold and silver bullion. Mission: to refine gold and silver bullion to provide fine gold bars suitable for use in settlement of international balances, and fine silver bars suitable for coinage.
5. Executive Direction. To provide overall management of the Bureau of the Mint.

Mary T. Brooks, Director of the Mint

Frank H. MacDonald, Deputy Director of the Mint

Arnold Bresnick, Assistant Director for Planning,

Analysis and Information Systems and Acting Assistant

Director for Administrative Support

Roy Cahoon, Assistant Director for Public Services

Alan Goldman, Assistant Director for Technology

George Ambrose, Assistant Director for Production

Name
Mary Brooks

City currently assigned
Washington, D. C.

DPOB: 11/1/07, Colby, Kansas

Education: B.A., University of Idaho, 1929

Military Service: None

Civilian Experience: State Senator, Idaho State Legislature, 1964-1969; Assistant Chairman, Republican National Committee, 1965-1969; Member of Illinois and Vice Chairman from 1960, Republican National Committee, 1957-1961; Administrative Assistant, Senator John Thomas, Idaho, 1944 & 1945.

U.S. FEDERAL EMPLOYMENT

<u>Entering Date</u>	<u>Title</u>	<u>Grade</u>	<u>Agency</u>	<u>Location</u>
8/12/69	Consultant	-	Mint	Washington, D. C.
9/12/69	Director of the Mint	GS-18	Mint	Washington, D. C.

AWARDS

Exceptional Service Award, Treasury Department, 1972 Annual Awards Ceremony

Under Mrs. Brooks stewardship, the Bureau of the Mint received the Secretary's Award for the best overall results in the suggestion program and for excellence in improving communications and service to the public during Fiscal Year 1973 at the 1973 Department of the Treasury's Annual Award Ceremony.

Name

Frank H. MacDonald

City currently assigned

Washington, D.C.

DPOB: 4-29-33, Springfield, IllinoisEducation: Bradley University, Peoria, Illinois, 1951-1953; Kansas University, Lawrence, Kansas, 1956-1959, B.S. in Civil EngineeringMilitary Service: Captain, U.S. Army, 1953-1954 and 1959-1963Civilian Experience: Construction Manager for Parsons-Jurden Corporation between 1965 and 1969; President, F. H. MacDonald Engineering, Inc. from 1969 to 1971U.S. FEDERAL EMPLOYMENT

<u>Entering date</u>	<u>Title</u>	<u>Grade</u>	<u>Agency</u>	<u>Location</u>
4-3-63	Technical Management Experimental Facilities and Equipment	GS-12	NASA	Huntsville, Ala.
10-20-71	Deputy Director of the Mint	GS-13 GS-17	NASA Mint	Huntsville, Ala. Washington, D.C.

AWARDS

None

List of Key Headquarters Officials

Mary T. Brooks
Director of the Mint

Frank H. MacDonald
Deputy Director of the Mint

Arnold Bresnick
Assistant Director for Planning, Analysis and Information Systems
and Acting Assistant Director for Administrative Support

Roy Cahoon
Assistant Director for Public Services

Alan Goldman
Assistant Director for Technology

George Ambrose
Assistant Director for Production

Current Status

In order to meet increasing coin demand, the Mint has developed plans for expanding production capacity, the initial phase of which is now scheduled for implementation. These plans, if totally executed, will meet our currently projected short-term coin demand.

Analysis and Action Required:

The following action is planned:

During the July 1, 1973, to June 30, 1975 time frame, we will conclude the fabrication of coinage study in the Denver Mint and will a transition of affected personnel to the Coining Division. This transition will provide for an increase in coin production by allocating operation of equipment on a three shifts, eight-hour, seven-days per week basis versus the current shift basis.

Upon completion of the strip fabrication operation and the receipt of additional coining presses currently on order, and other coin production equipment, the intent to strip fabrication facilities will be removed and strip to coin fabrication equipment will be installed in the vacated space. Having completed the equipment transition, the operation of all equipment will be reallocated to a three shifts, eight-hour, five-days per week shift once again.

MEETING SHORT-TERM COIN DEMAND

Statement of Issue:

The Bureau of the Mint is facing a potential coinage production shortage in the near future.

Background:

As a result of changes in the reverse of the twenty-five and fifty cent pieces, and the dollar coin for the Nation's Bicentennial, there may result an abnormal withdrawal of these coins from circulation causing a coin shortage.

Although we have experienced some relief in the price of copper in the past 6 months, the demand for 1¢ coins still remains high. We are currently producing 38 to 40 million cents per day with limited build-up of inventories in the Mints and Federal Reserve Bank system.

The increasing need for purchased strip may begin to tax the willingness of brass mills to furnish coinage strip at reasonable costs.

Current Status:

In order to meet increasing coin demand, the Mint has developed plans for expanding production capacity, the initial phase of which is now scheduled for implementation. These plans, if totally enacted, will meet our currently projected short-term coin demand.

Outlook and Action Required:

The following action is planned:

During the July 1, 1974 to June 30, 1975 time frame, we will conclude the fabrication of coinage strip in the Denver Mint and make a transition of affected personnel to the Coining Division. This transition will provide for an increase in coin production by allocating operation of equipment on a three shifts, eight-hour, seven-days per week basis versus the current shift basis.

Upon curtailment of the strip fabrication operation and the receipt of additional coining presses currently on order, and other coin production equipment, the ingot to strip fabrication facility will be removed and strip to coin fabrication equipment will be installed in the vacated space. Having completed the equipment transition, the operation of all equipment will be reallocated to a three shifts, eight-hour, five-days per week shift once again.

Final execution of this phase of the plan is scheduled for the July-December, 1975 time frame, and will supplement current annual production capability by two billion coins.

A follow-on plan which would further increase our coin production capacity is under development and involves the installation of additional coin production equipment at the Philadelphia Mint. This plan, when fully developed and approved, would become the second phase of our expansion plan, after the Denver Mint expansion, and has the potential of further increasing our annual coin production capacity by about four billion coins.

On July 29 we implemented production of one-cent coins at the West Point Depository. Assigned production rate 1 million pieces per day is being substantially met and we plan to expand production level to 6 million coins per day by March 1975.

BUREAU OF THE MINT

PROPOSED LEGISLATIVE PROGRAM FOR THE 94th CONGRESS, 1st SESSION

PART I-- PRESIDENT'S PROGRAM PROPOSALS

The Bureau of the Mint has no proposals for the President's Program.

PART II-- OTHER PROPOSALS PENDING IN CONGRESS

1. U.S. Mint Act of 1973 -- This proposal would revise and modernize the statutes relating to the coinage and the Bureau of the Mint.

A bill to implement this proposal was transmitted to the House and the Senate, respectively, on April 11 and 12, 1973. In the Senate, it was introduced as S. 1619 on April 17, 1973, and referred to the Committee on Banking, Housing and Urban Affairs. Formal Committee action has not been taken on the bill either in the House or the Senate.

This proposal will not require any increased appropriation.

2. Change in Penny Alloy -- This proposal would authorize the Secretary to change the current copper-zinc alloy of the one-cent piece to an alloy containing 96% aluminum whenever he determines that the use of copper in the penny is no longer feasible.

A bill to implement this proposal was transmitted to the House and the Senate, respectively, on December 7, 1973. In the House, the bill was introduced as H.R. 11841 on December 7, 1973, and in the Senate as S. 2795 on December 11, 1973. The Senate Committee on Banking, Housing and Urban Affairs favorably reported the bill on December 13 and the Senate passed the bill without debate on December 14, 1973. In the House, the Subcommittee on Consumer Affairs of the Committee on Banking and Currency held hearings on H.R. 11841 on March 27, 1974. The Subcommittee approved the bill, with amendment, for consideration by the full Committee on Banking and Currency on June 19, 1974. On July 22, 1974, Representative Patman introduced H.R. 16032, a clean bill, which would authorize the Secretary to alter the copper-zinc composition of the one-cent piece whenever in his judgment such action is necessary to assure an adequate supply of coins and, until December 31, 1977, and subject to prior notification to the Senate and House Banking Committees, adopt such other metallic alloy for the one-cent piece as he shall determine. In addition, H.R. 16032 would authorize the Secretary to transfer up to \$10 million to the Eisenhower College out of the proceeds of the sale of Eisenhower proof dollars. H.R. 16032 was favorably reported by the House Banking and Currency Committee on August 8, and on August 13, 1974, the House Rules Committee granted a rule providing for consideration of the bill by the House.

This proposal would not require any increase in appropriations.

3. Construction of Mint Facilities -- This proposal would amend the Act of August 20, 1973, as amended, 31 U.S.C. 291-4, to provide for an increase in the amount already authorized for construction of Mint facilities from \$45 million to \$95 million and to extend for 10 years the time during which such funds could be appropriated.

This proposal was transmitted to the House and the Senate, respectively, on February 26 and 28, 1973, and was referred to the Committees on Public Works. In the Senate, the bill was introduced as S. 1901 on May 30, 1973. Hearings were held on June 6, 1973, by the Subcommittee on Minting and Coinage of the Committee on Banking, Housing and Urban Affairs. The bill was approved for full Committee consideration on June 13 and, on June 20, 1973, the Committee on Banking, Housing and Urban Affairs ordered S. 1901 to be reported favorably to the Senate. The Senate passed the bill on June 27, 1973. In the House, the Subcommittee on Public Buildings and Grounds of the Public Works Committee held hearings on S. 1901 on November 13, 1973. On November 29, 1973, the Public Works Committee recommended passage of the bill. No further action has been taken by the House on S. 1901.

This legislation would have the following impact on appropriations for a 5-year period by fiscal year:

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
	(Dollars In Thousands)				
Budget Authority...	--	-40.65	-10.25	-.9	--
Outlays.....	-3.48	-.40.65	-10.25	-.9	--

4. Coinage Protection -- This proposal would protect the clad coinage by prohibiting the making of clad strip from which slugs can be cut for use in coin operated machines and would prohibit misrepresentation as to proof and uncirculated coins.

This proposal was introduced in the Senate as S. 1140 on March 8, 1973, and referred to the Committee on Banking, Housing and Urban Affairs. Identical legislation, H.R. 5540, was introduced in the House on March 13, 1973, and referred to the Judiciary Committee. No Committee action has been taken on the bills either in the House or the Senate.

This proposal will not require an increase in appropriation.

part III -- OTHER PENDING PROPOSALS

Appointment of Special Police -- This proposal would authorize the appointment of non-uniformed special police in the Bureau of the Mint, the Bureau of Engraving and Printing, and in the Bureau of Public Debt. The proposal was referred to the Office of Management and Budget on January 28, 1974.

Background

In March 1972, the AFGE filed a petition with the Assistant Secretary of Labor for Labor Management Relations requesting national exclusive representation for a unit composed of all eligible Mint employees, including professionals, if they voted for inclusion. Following a hearing, the Assistant Secretary for Labor Management Relations found such a unit appropriate and ordered a nationwide election to be held in September 14, 1973.

Current Status

The Mint has established an Advisory Committee composed of management representatives from each of its installations and of the Office of the Director. The Committee is representative of all Mint operations, e.g. personnel, finance, production, etc. The Advisory Committee will study the union's proposals and prepare management's counter-proposals. A preliminary meeting was held on May 4 and 7, 1974, in Washington, D.C.

In the meantime, the National Office of AFGE is consulted on all matters concerning or involving more than one installation. The President of the National Mint Council has been delegated the authority, by the National Office of AFGE, to meet and confer with management on day to day problems. Daily problems at the local level are handled by local union presidents and appropriate management officials.

The Union's proposals were received on June 17, 1974. The national proposals are extensive, to say the least. But we do not anticipate that a settlement negotiated by the Bureau and the Mint Council would be reached.

The AFGE's Contract Proposals were sent to all 42 AFGE offices for comment and preparation for a Joint Field Bureau Contract Meeting.

Nationwide Labor Contract

Statement of Issue

On May 21, 1974, the Bureau of the Mint informally developed ground rules for negotiations of a nationwide contract with the American Federation of Government Employees (AFGE), the national exclusive representative for bargaining units composed of the Mint's professional and non-professional employees. Representing the union was an official of the national office of AFGE. The National Mint Council, composed of the AFGE Local Presidents at New York, Philadelphia, Denver and San Francisco, represents Bureau employees for purposes of collective bargaining.

This contract will be the Mint's first nationwide contract. Negotiations of the actual contract will begin in early September, 1974.

Background

In March 1972, the AFGE filed a petition with the Assistant Secretary of Labor for Labor Management Relations requesting national exclusive recognition for a unit composed of all eligible Mint employees, including professionals, if they voted for inclusion. Following a hearing, the Assistant Secretary for Labor Management Relations found such a unit appropriate and ordered a nationwide election to be held in September 24, 1973.

Current Status

The Mint has established an Advisory Committee composed of management representatives from each of its installations and of the Office of the Director. The Committee is representative of all Mint operations, e.g. personnel, finance, production, etc. The Advisory Committee will study the union's proposals and prepare management's counterproposals. A preliminary meeting was held on May 1 and 2, 1974, in Washington, D.C.

In the meantime, the National Office of AFGE is consulted on all matters concerning or involving more than one installation. The President of the National Mint Council has been delegated the authority, by the National Office of AFGE, to meet and confer with management on day to day problems. Daily problems at the local level are handled by local union presidents and appropriate management officials.

The Union's proposals were received on June 12, 1974. The initial proposals are ambitious, to say the least, but we do not anticipate that a settlement beneficial to the Bureau and the Mint Council cannot be reached.

The AFGE's Contract Proposals were sent to all field offices for comment and preparation for a Joint Field Bureau Contract Planning Group.

The group of approximately 30 line managers and key staff and personnel met for two (2) weeks - August 5-16 to develop the Bureau's Bargaining Positions issues and Manager's Control Proposals to AFGE. Negotiations are scheduled to commence on September 9, 1974.

Bureau of Mint Functions & Proposal File

Funda - New Denver intent file

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION



Region 8

Denver Federal Center

Denver, Colorado 80225

Project No. 72-124

New Denver Mint

April 6, 1973

Mr. Frank Rhea
Denver Mint
320 West Colfax
Denver, CO 80204

Dear Mr. Rhea:

As you are aware, the Treasury has turned over to GSA the 1.5 million dollars earmarked for site acquisition. Site acquisition costs to date have reduced this figure below the 1.5 million dollars required for the proposed agreement with the City of Denver for the South Platte Site. To date GSA officials in Washington have been unsuccessful in obtaining additional funding from Treasury for the necessary site expenses. Any assistance you can give us to assure adequate site acquisition funding at an early date will be greatly appreciated.

An additional \$21,000 to cover our expenses to date and the estimated costs through the site acquisition period has been requested from the Bureau of the Mint.

Sincerely,

DAVID L. GESS
Project Manager
New Denver Mint

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION



Region 8
Denver Federal Center
Denver, CO 80225
Project No. 72-124
New Denver Mint

May 31, 1973

Mr. Frank Rhea
Denver Mint
320 West Colfax
Denver, CO 80204

Dear Mr. Rhea:

Enclosed for your information and files is one copy of the four original site agreements which were signed on May 24, 1973 by the City and County of Denver and GSA. This office has retained one of the originals and the remaining two originals were left for the City and County of Denver on May 24, 1973. This confirms that five copies of the schedules referenced in the site agreement have been previously furnished to you.

Your effort and cooperation in preparing this agreement is greatly appreciated. Now that the site problem has been resolved we are looking forward to receiving the design criteria and firming up the professional services design contract.

Sincerely,

DAVID L. GESS
Project Manager
New Denver Mint

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION

Region 8
Denver Federal Center
Denver, Colorado 80225



May 25, 1973

Mr. Frank W. Rhea
Facilities Project Manager
Bureau of the Mint
Denver Mint
320 West Colfax
Denver, Colorado 80204

Dear Frank:

I wanted you to know that I enjoyed participating with you in the ceremony yesterday and that we look forward to working with you in the spirit of cooperation over the years and months ahead.

If I may be of any assistance to you, please don't hesitate to call on me.

Sincerely,

MICHAEL J. NORTON
Regional Administrator

FUNDING OBLIGATION - BY FISCAL YEAR

PLANNING SCHEDULE - NEW DENVER MINT

COST ELEMENT	1973	1974	1975	1976	1977	1978	FY 1979	DOLLARS IN MILLIONS
SITE								
Acquisition Development Work	1.50		2.00					1.50 2.00
ARCHITECT-ENGINEER								
Criteria Development	0.06							0.06
Production Process Design	0.30							0.30
Site Development Dwgs.	0.12							0.12
Facility Bldg. Design	1.44							1.44
Equipment Specs. & Survey								
Equipment Potential	0.08							0.08
Equipment Procurement, Bid Review, Installation Dwgs.			1.70					1.70
BUILDING (s)								
Construction Cost				21.00				21.00
EQUIPMENT								
Equipment Cost					2.32			18.00
Equipment Installation Cost				5.00				5.00
CONSTRUCTION MANAGEMENT								
Construction Supervision			1.40		0.60			1.40
Equipment Inst. Supervision								0.60
START-UP AND RUN-IN						0.60		0.60
RELOCATION AND TRANSITION							0.28	0.28
FUNDING REQUIREMENTS	3.50	--	20.78	26.00	2.92	0.60	0.28	54.08

FUNDING OBLIGATION - BY FISCAL YEAR
PLANNING SCHEDULE - NEW DENVER MINT

COST ELEMENT	1973	1974	1975	1976	1977	1978	FY 1979
SITE							
Acquisition	1.50		2.00				
Development Work							
ARCHITECT-ENGINEER							
Criteria Development	0.06						
Production Process Design	0.30						
Site Development Dwg.	0.12						
Facility Bldg. Design	1.44						
Equipment Specs. & Survey							
Equipment Potential	0.08						
Equipment Procurement, Bid			1.70				
Review, Installation Dwg.							
BUILDING (s)							
Construction Cost				21.00			
EQUIPMENT							
Equipment Cost			15.68		2.32		
Equipment Installation Cost				5.00			
CONSTRUCTION MANAGEMENT							
Construction Supervision			1.40		0.60		
Equipment Inst. Supervision							
START-UP AND RUN-IN						0.60	
RELOCATION AND TRANSITION							0.28
FUNDING REQUIREMENTS	3.50	--	20.78	26.00	2.92	0.60	0.28
							54.08

DOLLARS
IN
MILLIONS

1.50
2.00

0.06
0.30
0.12
1.44

0.08

1.70

21.00

18.00
5.00

1.40
0.60

0.60

0.28

54.08

FUNDING OBLIGATION - BY FISCAL YEAR

PLANNING SCHEDULE - NEW DENVER MINT

COST ELEMENT	1973	1974	1975	1976	1977	1978	FY 1979
SITE							
Acquisition	1.50		2.00				
Development Work							
ARCHITECT-ENGINEER							
Criteria Development	0.06						
Production Process Design	0.30						
Site Development Dwg.	0.12						
Facility Bldg. Design	1.44						
Equipment Specs. & Survey							
Equipment Potential	0.08						
Equipment Procurement, Bid Review, Installation Dwgs.			1.70				
BUILDING (s)							
Construction Cost				21.00			
EQUIPMENT							
Equipment Cost			15.68		2.32		
Equipment Installation Cost				5.00			
CONSTRUCTION MANAGEMENT							
Construction Supervision			1.40		0.60		
Equipment Inst. Supervision							
START-UP AND RUN-IN						0.60	
RELOCATION AND TRANSITION							0.28
FUNDING REQUIREMENTS	3.50	--	20.78	26.00	2.92	0.60	0.28
							54.08

DOLLARS
IN
MILLIONS

1.50
2.00

0.06
0.30
0.12
1.44

0.08

1.70

21.00

18.00
5.00

1.40
0.60

0.60

0.28

54.08

UNITED STATES GOVERNMENT

Memorandum

TO : Mr. Dave Gess, GSA Project Manager, New Denver Mint DATE: June 22, 1972

FROM : Frank W. Rhea, Facilities Project Manager, Bureau of the Mint

SUBJECT: Availability of Funds for Architect-Engineer Services, New Denver Mint

1. Per your request of 20 June 1972, following is the status of subject funds:

a. An appropriation request in the amount of \$2,000,000, for A-E services for the new mint, is contained in the Treasury Department's FY '73 Budget now being considered by the Congress.

b. As of 21 June 1972, both the House and Senate Committees involved with Treasury appropriations had reported out a proposed Appropriation Bill. The \$2.0 million is still intact.

c. The full House is expected to act on Treasury's appropriation shortly, followed soon thereafter by Senate action. Based on the status of actions to date in the Congress, plus experience from recent years, it is expected that Congress will complete action on Treasury's appropriation before 14 July 1972. Presidential approval and signature is expected no later than 21 July 1972.

d. After the above, action is required by Bureau of the Mint and OMB relative to apportionment. Normally, it takes about 30 days between Presidential approval and apportionment action by OMB. Thus, we expect to have the \$2.0 million available for transfer to GSA Hq. in Washington about 22 August 1972.

2. We in the Bureau of the Mint will complete by 6 July 1972, all material (design and construction schedule, planning criteria, equipment criteria, coin data tables, metal flow charts, and tentative facility layouts) that we are preparing for inclusion in the A-E proposal request and eventually in the A-E contract. There is about two months work involved in obtaining a proposal from the selected A-E, Government - A/E negotiations on the contract, and completion of audits on cost and pricing data and overhead.

By the time these tasks are completed, the FY '73 funds should be available, and a contract can be signed and the A/E proceed. My schedule for starting A/E services is 1 September 1972. If we are to meet this



schedule, selection of the A/E should be finalized promptly so that the detailed actions leading to the A/E contract can begin.

3. Bureau of the Mint has funds to make available to pay for internal GSA costs, if required. Also, I'm sure the selected A/E will not object to proceeding with proposal preparations and negotiations prior to the availability of the FY 73 appropriations.



THE DEPARTMENT OF THE TREASURY

WASHINGTON, D.C. 20220

October 4, 1974

OFFICE OF

DIRECTOR OF THE MINT

Mr. David L. Gess
Project Director, New Denver Mint
Public Buildings Service, Region VIII
Denver Federal Center, Building 41
Denver, Colorado 80225

Dear Dave,

Reference is made to your letter of October 2, 1974 regarding contracting with the A/E firm of DMJM - Phillips Reister, Inc. for the design of the new Denver Mint. As you noted in your letter, the undersigned participated in the formal negotiations held with this firm on September 23, 24 and October 1, 1974.

The Bureau of the Mint and the Department of the Treasury are in full accord with all terms of the contract negotiated with DMJM - Phillips Reister, Inc. This includes the negotiated design fee, the detailed contract provisions and clauses, and the design services schedule. We agree that the fee is reasonable and in the best interest of the Government.

The Bureau of the Mint has two important matters pending at this time which have considerable significance regarding a decision to proceed with design. First, we are waiting action by the U. S. House of Representatives on Senate Bill 1901, which would authorize the appropriation of an additional \$50 million for the construction of Mint facilities, and would extend the authorized time period for such appropriations until June 30, 1983. The second matter is the Treasury Department's FY76 budget request for \$40,650,000 for constructing and equipping the new Denver Mint. We expect favorable action by the House of Representatives on the first matter before its scheduled recess on October 17, 1974, and are scheduled for hearings with the Office of Management and Budget on our FY76 budget request during the week of October 14 - 18. Hopefully, both of these matters will be resolved favorably soon. However, until we have a resolution, particularly with regard to our FY76 budget request, the Bureau of the Mint position is that we should hold up on awarding the design services contract. We do think that it is appropriate that you process the proposed contract for approval of your Washington office so that we will be in a position to award a contract promptly upon receipt of favorable action by the Congress and the Office of Management and Budget.

Sincerely,

Frank W. Rhea

Frank W. Rhea

Facilities Project Manager

Bureau of the Mint

cc: F. MacDonald(w/ltr fm Gess

Supt. - Deputy Supt.

Keep Freedom in Your Future With U.S. Savings Bonds



8/6/73

NEW DENVER MINT
ESTIMATED COST - WAREHOUSE

1. This is an estimate for the construction of a warehouse on the South Platte River site to store one year's supply of coil strip for the coinage parameters listed in the New Denver Mint Planning Criteria.
2. Storage area requirements have been based on coinage alloys used currently. A change to a different alloy for 1¢ pieces would not significantly affect the requirements, however, as the problem is to store a certain volume, rather than a weight. The storage area calculations are:

a. Initial Production Parameters (Annual)

<u>Denomination</u>	<u>Quantity</u>	<u>Weight of Coins</u> <u>Lbs.</u>
1¢	9,280,000,000	63,600,000
5¢	620,000,000	6,800,000
10¢	220,000,000	1,100,000
25¢	110,000,000	1,380,000
50¢	55,000,000	1,380,000
\$1	55,000,000	2,750,000
Other coins	160,000,000	800,000
		<u>77,810,000</u>

$$\text{Tonnage} = \frac{77,810,000}{2,000} \times 1.56642$$

(loss conversion factor - edge trimming thru coining) = 61,000 say 60,000 tons

b. Ultimate Production

As the new mint building space is being planned to support a 50% increase in production, the warehouse should be compatible, thus the requirement is to store 90,000 tons of coiled strip.

c. Area Calculations

- (1) It has been assumed for planning purposes that the purchased coils will average 3 tons per coil and that the coils will be stacked four-high on racks. The stacks will be worked by both overhead bridge cranes and fork-lift trucks so as to conserve space.

$$(2) \frac{90,000}{3} = 30,000 \text{ coils}$$

Each coil would be approximately 32" x 36" and would require 12 sq. ft. of floor space.

$$\frac{30,000}{4} \times 12 = 90,000 \text{ sq. ft. net}$$

$$90,000 \times 1.5 \text{ (gross area to net factor)} = 135,000 \text{ sq. ft.}$$

3. COST ESTIMATE

Building (135,000 sq. ft. X 25 ft. high X \$0.675/cu. ft.)	\$ 2,278,000
Foundation Extra (Heavy loading)	70,000
Floor Extra (Heavy loading)	211,000
Bridge Cranes, 15 ton (4)	400,000
Railroad Siding, Roads & Truck Parking	500,000
Special Treatment, Exterior Facing	200,000
Utilities Connections	100,000
SUB-TOTAL	\$ 3,759,000
Cost Adjustment to April 1976	827,000
Landscaping, Miscellaneous	30,000
Contingencies	230,000
Construction Supervision	425,000
Design Services	525,000
TOTAL	\$ 5,796,000

8/6/73

NEW DENVER MINT
COST ESTIMATE

CONSTRUCTION

Site Development

Building(s)(400,000 sq.ft.)

\$ 2,000,000

21,000,000

\$ 23,000,000

EQUIPMENT (Including Cost Escalation @
6% Per Annum)

Equipment Installation

15,000,000

4,000,000

19,000,000

CONSTRUCTION COST ADJUSTMENT TO APRIL,
1976 (Building & Site Work Only)5,000,000

SUB-TOTAL

\$ 47,000,000

EXTERIOR LIGHTING, LANDSCAPING &
MISCELLANEOUS

600,000

CONTINGENCIES (5% X \$47,000,000)

2,400,000

ESTIMATED DIRECT CONSTRUCTION COST

50,000,000

LAND ACQUISITION

1,500,000

CONSTRUCTION MANAGEMENT & INSPECTION

2,500,000

DESIGN, DESIGN REVIEW & MANAGEMENT

2,900,000

START-UP, RELOCATION & TRANSITION

900,000

\$ 7,800,000

7,800,000

ESTIMATED PROJECT COST

\$ 57,800,000

Max Estimate

1/9/75

Full Cost with Slurry Production.

Cost as of 1 Jan 1975

Site	2,000	
Bldgs ^{650,000} @ 65.10	39,965	41,065
Equipment		44,000
Compressor @ 5%		4,253
Reactivation		1,500
Estimated Construction Cost		<u>90,818</u>

Land	1,500	
CM ^{4.5%} x 66,000	3,070	
Permit, etc	4,676	
Relocation, handling	<u>900</u>	
	10,146	10,146

\$100,964

For Authorization Bill
\$8,000 assets not found
or avail

8,000

92,964

Coining Bldg Equipment Cost

as of Jan 1970

Scrap Bailer		400,000
Blanking Presses	106,000 unit 1.14 12 @ 106,000	1,272,000
Ammed & Clear Lash		912,000
	*131,000 (1273) x 1.12 = 152,000 x 6	
Upset Mills	9 @ 20,000	180,000
Coin Presses		6,120,000
	\$61,500 x 1.18 = 72,000 x 85	
Count & Bag		300,000
Catalytic Equip		600,000
Pk & Collar Frame		1,000,000
Grinders Handling		3,000,000
Miscellaneous		1,000,000
		14,784,000

Brass Coin Facility	
30 Coin Presses @ 72,000	2,160,000
Blanking Presses	400,000
Miscellaneous	400,000
	2,960,000

Equipment Total	17,744,000
Installation Costs	2,255,000
	20,000,000

Inflation 77 @ 6% 76 @ 6% 77 @ 6%
 1.06 x 1.06 x 1.06 = 1.1685
 1.1236
~~1.1685 x 20,000,000 = 23,370,000 (Over)~~

Coining Bldg

Costs (1 Jan 75) of assets available

Blasting Presses	8 @	106,000	848,000
Armed & Clear Liner	3 @	152,000	456,000
Upset mill	8 @	20,000	160,000
Coin Presses	45 @	72,000	3,240,000
Court & Bay	4 @	5,000	200,000
Unassigned Equip			200,000
Pie & Roller Press			500,000
			5,604,000

1 roof Coin Cost

Equip Cost
Installation (Equip)

2,960,000
8,564,000
136,000
8,700,000

Costs 1/1/75	20,000,000
	8,700,000
	11,300,000

$$11,300,000 \times 1.1685 = \frac{13,204,850}{8,700,000}$$

22,000

ESTIMATE WORKSHEET		DENVER, COLO		PROJECT NO.	
MINT		J. ADAMS		DATE 7-18-73	
REGION		STATE		SHEET NO.	

ESTIMATE

Construction	36,800,000
SITE DEVELOPMENT	<u>2,000,000</u> 38,800,000

EQUIPMENT	23,000,000
II INSTALLATION (MINT)	<u>6,000,000</u> 29,000,000
	(47,800,000)

COST INC. 9 1/76 (2%)	2,500,000
(on construction only)	<u>(76,300,000)</u>

Reservations	700,000
CONTINGENCY (5% of 76,300,000)	<u>3,800,000</u>

<u>FCC</u>	\$ 20,000,000
------------	---------------

<u>FSC (10%)</u>	\$ 1,500,000
------------------	--------------

<u>EMIC</u>	3,200,000
-------------	-----------

<u>EDRC</u>	4,500,000
-------------	-----------

START-UP (Shake-down) Cost (MINT)	600,000
-----------------------------------	---------

RELOCATION OF EQUIPMENT (MINT)	<u>300,000</u>
--------------------------------	----------------

\$ 90,900,000
(4/76)

GROSS AREA: 700,000 sq ft

REVISED

GENERAL SERVICES ADMINISTRATION
PUBLIC BUILDINGS SERVICE

PROJECT
DENVER, COLO

PROJECT NO.
CONTRACT NO.
DRAWING STAGE

ESTIMATE WORKSHEET

MINT

ITEM

REGION DIVISION OR BRANCH

ESTIMATED BY
J. DOAMS

DATE
7-18-73

SHEET NO. OF
27 6000

RESERVATIONS

(Based on 47,200,000)

Lamp 25000
Soc & Case 5000
FA 236,000
Ext. Lighting 236,000
CARPET 20,000
DUPLEX 20,000
MECHAN. PIPES 58,000
PLANTING 100,000

700,000

EMIC (based on \$77,000,000)

Shore table 1,060,000 x 1.35 = 1,431,000

T. MNT

CPM (40%)

Const Mgt. 2%

167,000
62,000
1154,000

3,200,000

T. MNT. - Const. - 50,000

STEEL - 50,000

SOFTS 35,000

MISC 27,000

167,500

67
25
52

CPM: .0024 x 77,000,000 = 154,000
410%

42,000 - Design (6%)

REVISER

GENERAL SERVICES ADMINISTRATION PUBLIC BUILDINGS SERVICE		CITY DENVER, COLO.	PROJECT NO.
ESTIMATE WORKSHEET		PROJECT MINT	CONTRACT NO.
REGION	DIVISION OR BRANCH	ESTIMATE J ADAMS	DRAUGHTING STAGE
		DATE 7-18-73	ITEM
			SHEET NO. OF

EXPENSES

Dupl. Adv. Bids etc	107,000	
ST. & S.	150,000	
TRAVEL	10,000	
TESTS	53,000	
	<u>320,000</u>	\$ 320,000

DUES & FEES

A-E = $6\% \times 47,300,000 = 2,830,000$ (REVENUE)

EQUIPT. $3\% \times 29,000,000 = \frac{870,000}{3,700,000}$

GSA REVIEW

144,000 x 1.65	= 238,000	
CPM	92,000	
MODEL	50,000	
TRAVEL OR RE. REVIEW	25,000	
CONSULTANTS (CON. etc)	95,000	
	<u>500,000</u>	
		\$ 4,500,000

73 School Equipment Installation
Should have been
25,000.00

~~1000~~

7/1/72

now

12.9
1.7

14.6
.3

14.9

Add
Shear 50,000
Scale 50,000
Sew 10,000
Elevators & Crane 1,000,000

1,100,000

Convey

Scrap Bailer 400,000
Blasting 80,000
Convey & Clear
Crystallized 300,000
Pneum. Cylinders 200,000
Miscellaneous 1,000,000
Structural Steel 300,000

4,500,000
5,000,000
1,000,000

6,000,000

73 Estimate Equipment & Installation
Should not be
35,000,000

Excluded to 4/76

72 73 74 75 76
1.03 1.06 1.12 1.10 1.02
1.292 1.32 x 35,000,000 = 46,200,000

Excluded from 4/76 to 9/77

9,000,000

~~1.32 x 1.04 x 1.04~~

~~1.322 x 1.04 x 46,000,000~~

1.04 x 1.04 = 1.08 x 46,000,000 = 49,680,000

Funda - New Dover Kent File

Sile General File

Agreement for Site for the New Mint
of the United States at Denver, Colorado

KNOW ALL MEN BY THESE PRESENTS:

THIS AGREEMENT, entered in this _____ day of _____ 1974,
by and between the United States of America, acting through the
Administrator of General Services, under and pursuant to the powers and
authority contained in the provisions of the Federal Property and Adminis-
trative Services Act of 1949 (63 Stat. 377), as amended, the Public Buildings
Act of 1959 (73 Stat. 479), as amended, and regulations and orders
promulgated thereunder, hereinafter referred to as the "United States" and
the City and County of Denver, Colorado, a Municipal Corporation, by its
Mayor, duly authorized, hereinafter referred to as the "City."

WITNESSETH THAT:

WHEREAS:

The Secretary of the Treasury is authorized, acting through the
Administrator of General Services, to acquire suitable sites, design and

construct buildings for the Mint of the United States at Denver, pursuant to 31 U.S.C. 261 and 291;

The parties hereto desire to provide a new mint facility on a site which has the advantage of good location relative to the manufacture of coins, transportation, labor market and adequate utilities;

Appropriations have been made available, pursuant to Public Law 92-49 approved July 9, 1971, in the amount of \$1,500,000 for the purchase of a site for the new mint facility;

The City has agreed to assemble as a land package a site of approximately thirty-five (35) acres of land in the City and County of Denver as described in Schedule A, attached hereto and by reference made a part hereof; and to convey the above described site to the United States free and clear of all liens and encumbrances and prepared for conveyance in accordance with the terms and conditions of this Agreement;

The United States is prepared to acquire the site for the new mint facility;

NOW, THEREFORE, each of the parties hereto for and in consideration of the aforesaid premises and of the mutual obligations herein; hereby covenant and agree as follows:

ARTICLE I

GENERAL TERMS OF CONVEYANCE OF SITE

Sec. 1 - Assembly of Site

Subject to all the terms, conditions and covenants of this Agreement, the City agrees to acquire at its own expense title to approximately thirty-five (35) acres of property owned by the Clayton Trust and generally described as follows: A parcel of land located in the northwest corner of the existing Park Hill Golf Course which coincides with the intersection of Colorado Boulevard and Smith Road, Denver, Colorado; the above described parcel of land shall be generally rectangular in configuration lying approximately 1,000 feet north and south along Colorado Boulevard and approximately 1,400 feet east and west along Smith Road, together with a square parcel of land to provide access to 40th Avenue at Colorado Boulevard in approximate dimension of 250 feet by 250 feet located along Colorado Boulevard immediately south of the above described 1,000 feet by 1,400 feet parcel; the City shall also provide the United States with right of access at all points along Colorado Boulevard and Smith Road; the City shall provide the necessary easements and/or licenses required for the United States to install a railroad right-of-way spur line from the existing Union Pacific Right-of-Way and continuing across Smith Road to the northeast corner property line of the site as described above; and convey said property, easements and/or licenses as described above and shown on Schedule A, attached hereto and by reference made a part

hereof, to the United States as the site for the new Denver Mint not later than September 15, 1975. The City agrees to furnish to the United States within forty-five (45) days after execution of this Agreement a survey of the above described parcels of land to be performed by a surveyor licensed by the State of Colorado; and upon approval by the parties hereto, said survey shall be attached to this Agreement as Schedule B and by reference become a part hereof.

Sec. 2 - Sales and Purchase Price

The City will sell and convey the above described thirty-five (35) acre site to the United States; and the United States will purchase the site for an amount equal to the purchase price paid by the City, not to exceed one million five hundred thousand dollars (\$1,500,000). The sum of money provided for payment under this section shall constitute the United States' sole monetary obligation pertaining to the acquisition of the site prepared for conveyance in accordance with this Agreement, and performance of all duties of the City hereunder, which sum shall be paid by U.S. Treasury check drawn to the order of the City. The City is aware and acknowledges that the payment provided for herein may be substantially below the appraised fair market value of the site to be conveyed as provided by this Agreement, and thus knowingly waives any and all entitlements to the benefits provided for under Public Law 91-646, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and any amendments thereto (84 Stat. 1894, 42 U.S.C. 4601).

Sec. 3 - Conveyance

The City shall convey to the United States fee simple title to the site described in Sec. 1 above, by Metes and Bounds Description, as formulated by the received survey, by delivery of a Warranty Deed upon payment as provided in Sec. 2 of this Agreement. The conveyance shall be made not later than September 15, 1975.

Sec. 4 - Satisfaction of Title and Title Evidence

The City shall deliver or cause to be delivered to the United States, at the earliest possible date, but not later than ninety (90) days after the execution of this Agreement, without cost, evidence showing title to the site in the City, which may consist of title abstracts, certificate of title or other evidence of title satisfactory to the Attorney General of the United States, or his designee.

Upon written notice by the United States of any title defects, the City agrees to deliver or cause to be delivered at its expense, such deeds, releases, or other title instruments as required by the United States to cure such defects, so that the title conveyed to the United States is free of all mineral rights, easements, restrictions, and leases, except as otherwise may be specifically waived by the United States or expressly provided for in this Agreement.

All judgments, taxes, assessments, liens or encumbrances of any sort, existing or inchoate, shall be satisfied by the City at its expense prior to transfer of title to the United States.

Sec. 5 - Removal, Abandonment or Relocation of Utilities

The United States shall have the right to remove, abandon or relocate any surface and/or subsurface utilities discovered upon the site described in Article I, Sec. 1 above.

Sec. 6 - Use and Development of the Surrounding Area

The City hereby binds itself to make every effort to limit the use and development of the area surrounding the above described mint site to those in keeping with the dignity to be accorded to the special function of the new Mint of the United States at Denver, Colorado.

Sec. 7 - Uniform Relocation Act Requirement

The City at its expense agrees to fulfill any and all obligations imposed on this project by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, and any amendments thereto, with regard to its acquisition of the site to be conveyed to the United States by acquiring property in accordance therewith and providing relocation payments and assistance thereunder. Such undertaking by the City shall be in accordance with Federal regulations and guidelines issued pursuant to the Relocation Act (41 CFR 101-18.3). In addition the City represents that it will, at its own expense, assure the complete fulfillment of any applicable requirements of the State of Colorado Relocation Assistance Act of 1971 and any regulations issued pursuant thereto. This provision requires delivery of the site without any occupants or right to occupancy of any part of said site or any buildings situated thereon.

Sec. 8 - Delivery of Deed and Possession

The City shall deliver the Deed and possession of the site to the United States on the date the purchase price is paid to the City, or on such other date as the parties hereto may otherwise mutually agree upon in writing. Payment of the purchase price and delivery of the Deed shall be at the principal offices of the City, or at such other place as is mutually satisfactory to the parties.

Sec. 9 - Arrangement for Utilities - Access to Site

The City shall, without expense to the United States, prior to completion of the new Denver Mint, provide or cause to be provided at the boundaries of the site at locations designated by the United States all necessary utilities (including, but not limited to, electric, gas, water, telephone, storm and sanitary sewers) required in the construction and occupancy of the new Denver Mint as of the time or times when such utilities shall be required for said construction or occupancy, except as may otherwise be agreed upon in writing between the parties hereto.

Sec. 10 - Survey and Subsoil Information - Access to Site

Within thirty (30) days from the date of this Agreement the City will grant and assure access to the site and all portions thereof or obtain and furnish permits for access thereto from those in possession so that the United States or its authorized representative or contractor may obtain topographic data, soil samples, and subsurface information where required for the preparation of drawings and specifications for the mint buildings to be erected on the site.

Sec. 11 - Notice

Any notice or communication necessary under and pertaining to this Agreement by either party to the other shall be sufficiently given or delivered if dispatched by registered or certified mail, postage prepaid, return receipt requested, and

(a) In the case of a notice or communication to the United States the address is as follows:

Regional Administrator
General Services Administration
Denver Federal Center, Building 41
Denver, Colorado 80225

(b) In the case of a notice or communication to the City the address is as follows:

Mayor, City and County of Denver
Room 350, City and County Building
Denver, Colorado 80202

Sec. 12 - Nondiscrimination in Employment

GSA Form 1714 entitled "Equal Opportunity Clause" marked Schedule E is attached hereto and made a part hereof. The terms "Contractor" and "Contract" as used therein shall be deemed to mean the City and this Agreement, respectively.

Sec. 13 - Counterparts

This Agreement is executed in four (4) counterparts, each of which shall be deemed to be an original, and such counterparts shall constitute one and the same instrument.

ARTICLE II

TERMINATION OF AGREEMENT

If the City does not acquire fee simple title to the site and complete transfer of title to the entire site to the United States prior to the date specified in Sec. 3, Article I, and perform all duties imposed upon it by the Agreement, prior to said date or the date otherwise provided for such duty or duties, as the case may be; this Agreement may be terminated at the election of the United States upon giving written notice thereof to the City. In the event of such termination, neither party shall be under any liability whatsoever to the other party.

ARTICLE III

MISCELLANEOUS PROVISIONS

Sec. 1 - Modification of Agreement

No variation or departure from any other provisions of this Agreement shall be binding on the City or the United States unless agreed upon in writing by the City and United States.

Sec. 2 - Officials Not to Benefit

No member of or Delegate to the Congress, or Resident Commissione,, shall be admitted to any share or part of this Agreement or to any benefit that may arise thereupon, but this section shall not be construed to extend to this Agreement if made with a corporation for its general benefit.

Sec. 3 - Conflict of Interest

No official or employee of the City shall have any personal interest, direct or indirect, in this Agreement, nor shall any such official or employee participate in any decision relating to this Agreement which affects his personal interest or the interests of any corporation, partnership, or association in which he is, directly or indirectly, interested.

No official or employee of the City shall be personally liable to the United States or any successor in interest in the event of any default or breach by the City or for any amount which may become due to the United States or a successor or on any obligations under the terms of this Agreement.

Sec. 4 - Covenant Against Contingent Fees

The City warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee except bona fide employees or bona fide established commercial selling agencies maintained by the City for the purpose of securing business.

For breach or violation of this warranty, the United States shall have the right to declare this Agreement terminated, without liability or in its discretion to deduct from the purchase price the full amount of such commission, percentage, brokerage or contingent fee.

Sec. 5 - The City Represents That:

(a) It has not employed or retained any company or person (other than a full-time bona fide employee working solely for the City) to solicit or secure this Agreement; and

(b) It has not paid or agreed to pay any company or person any fee, commission, percentage, or brokerage fee, contingent upon or resulting from the making of this Agreement, and agrees to furnish information relating thereto as requested by the United States.

Sec. 6 - Examination of Records

The City agrees that the Comptroller General of the United States or any of his duly authorized representatives or GSA shall, until the expiration of three (3) years after final action under this Agreement, have access to and the right to examine any directly pertinent books, documents, papers, and records of the City related to this Agreement.

IN WITNESS WHEREOF, the City has caused this Agreement to be duly executed in its name and behalf and duly attested; and the United States has caused the same to be duly executed by General Services Administration, on or as of the day and year first above written.

UNITED STATES OF AMERICA
Acting by and through the
Administrator of General Services

CITY AND COUNTY OF DENVER

By _____
Michael J. Norton
Regional Administrator, Region 8
General Services Administration

By _____
Mayor

Witness:

Mary T. Brooks
Director of the United States
Bureau of the Mint

ATTEST:

F. J. SERAFINI, Clerk and Recorder
Ex-Officio Clerk of the City and
County of Denver

By _____

RECOMMENDED AND APPROVED:

By _____
Manager of Public Works

APPROVED:

MAX P. ZALL, Attorney for the
City and County of Denver.

By _____
City Attorney

REGISTERED AND COUNTERSIGNED:

By _____
Auditor

UNITED STATES GOVERNMENT

Memorandum

DRAFT

Deliver

to

MIKE

LONRAY

TO : David MacDonald, Assistant Secretary

DATE:

FROM : Mrs. Mary T. Brooks, Director of the Mint

SUBJECT: Decision on Site for New United States Mint at Denver

Having given careful consideration to the Final Revised Environmental Impact Statement entitled "Construction of New United States Mint - Denver, Colorado," filed on May 29, 1974 with the Council on Environmental Quality, it is my recommendation that the proposed new Mint should be constructed on the Clayton Trust Property site at Park Hill in Denver, as described in the Statement. This conclusion has been arrived at in consideration of the following factors:

a. Both sites discussed in the Statement (the Clayton Trust Property and the Denver Federal Center in Lakewood, Colorado) are excellent and practically identical with respect to industrial engineering matters. Both are ideal regarding areas and dimensions, space for future expansion, foundation conditions, absence of flood or subsurface water problems, availability of utilities, and accessibility by rail and highway.

b. There are no significant environmental impacts (nor objections received from Federal, State and local agencies and the public) for either site relative to the normal prime environmental aspects (air and water pollution, noise pollution, construction period matters such as dust and erosion control, automotive traffic additions, and appropriateness of the proposed land use). Thus, considering these prime aspects, again there is no measurable difference between the two sites.

c. There is a considerable difference between the two sites with respect to secondary socio-economic impacts. The Department of Housing and Urban Development has stressed that moving the Mint out of the City of Denver would be counterproductive to the previous and continuing efforts of the Federal Government to stimulate and renew the core city, which serves as the sustaining element for the entire Denver Standard Metropolitan Statistical Area. HUD also has emphasized favorable factors for all employees with the Mint remaining in Denver, regarding availability of housing, social services and cultural facilities, particularly for the 41 percent of the present employees who are minority. The Office of Economic Opportunity and others, such as Congresswoman Patricia Schroeder, Denver City officials and various civic



*Transmitted 6/21/74
1515*

groups, have reiterated these considerations.

d. There is some advantage in retaining the historic ties with the City proper, as the "Denver Mint" is now a widely known institution, dating back to the 1890's.

e. ~~There is quite~~ ^{There is some} a potential for further delay if a site outside the City were selected. Current authorization is for a U. S. Mint "at Denver", which Treasury attorneys have concluded means "near" or "in the proximity of". This conclusion is subject to interpretation, however, and there is some potential for legal action challenging a move of the Mint outside of the City. Further delay is almost intolerable, as additional minting capacity is needed urgently as demonstrated ~~with~~ ^{by} the present penny shortage.

Notwithstanding the foregoing, I have given detailed attention to the alternatives to the construction of the Mint on the recommended site. Many sites have been considered and analyzed during the past two and one-half years. I find that the recommended Clayton Trust Property site is superior to the other possible alternatives, taking into account all pertinent factors.

APPROVED _____

DISAPPROVED _____

Date _____

David MacDonald
Assistant Secretary of the Treasury

Mr. David R. Macdonald
Assistant Secretary for Enforcement,
Operations, and Tariff Affairs

Mary Brooks
Director of the Mint

Decision on Site for New United States Mint at Denver

Having given careful consideration to the Final Revised Environmental Impact Statement entitled "Construction of New United States Mint - Denver, Colorado," filed on May 29, 1974 with the Council on Environmental Quality, it is my recommendation that, provided that the necessary authorization legislation is passed by the Congress, the proposed new Mint should be constructed on the Clayton Trust Property site at Park Hill in Denver. I have arrived at this conclusion after consideration of the following factors:

a. Both sites primarily discussed in the Statement (the Clayton Trust Property and the Denver Federal Center in Lakewood, Colorado) are excellent and practically identical with respect to industrial engineering matters. Both are suitable regarding areas and dimensions, aspect for future expansion, foundation conditions, absence of flood or subsurface water problems, availability of utilities, and accessibility by rail and highway.

b. There is no significant difference between the two sites relative to environmental aspects, such as air and water pollution, noise pollution, construction period matters such as dust and erosion control, automotive traffic additions, and appropriateness of the proposed land use.

c. There is a considerable difference between the two sites with respect to secondary socio-economic impacts. The Department of Housing and Urban Development has stressed that moving the Mint out of the City of Denver would be counterproductive to the previous and continuing efforts of the Federal Government to stimulate and renew the core city, which serves as the sustaining element for the entire Denver Standard Metropolitan Statistical Area. HUD also has emphasized favorable factors for all employees with the Mint remaining in Denver, regarding availability of housing, social services and cultural facilities, particularly for the 41 percent of the present employees who are members of minority groups. The Office of Economic Opportunity, Denver City Officials, various civic groups, and others have reiterated these considerations.

d. There is some advantage in retaining the historic ties with the City proper, as the "Denver Mint" is now a widely known institution, dating back to 1890's.

e. The Clayton Trust Property site would be available only by purchase at a cost to the Government of up to \$1.5 million, whereas the Lakewood site would be available without expenditure for the land itself. However, I do not consider that this factor outweighs the advantages of the Clayton Trust site set forth above.

I have given detailed attention to other alternatives to the construction of the Mint on the recommended site. Many sites have been considered and analyzed during the past two and one-half years. I find that the recommended Clayton Trust Property site is superior to the other alternatives, taking into account all pertinent factors.

APPROVED: _____ DATE: _____

DISAPPROVED: _____ DATE: _____



THE DEPARTMENT OF THE TREASURY

WASHINGTON, D.C. 20220

OFFICE OF
DIRECTOR OF THE MINT

MAY 17 1974

The Honorable
William McNichols
Mayor
City of Denver
Denver, Colorado

Dear Mayor McNichols:

As you well know, we are currently preparing a final environmental impact statement on alternative sites for the new mint at Denver, the sites being within the Clayton Trust Property (Park Hill) and the Denver Federal Center.

Obviously, one of the factors we will have to take into account in making a final site selection is the availability and cost of the property. If we were to select the Federal Center, the site for the new mint would be readily available to us without cost. If we were to select the Park Hill site, on the other hand, it is our understanding that the property would first have to be acquired by the City from the Clayton Trust, presumably at the prevailing market price. Since the funds made available to us by the Congress for the site acquisition are limited to \$1.5 million, it would be of great importance to us to receive a written assurance from you that, if the Park Hill site were selected, the City of Denver would be ready to convey the property to the U.S. Government at a reasonable market price but in no event more than \$1.5 million.

Furthermore, if the Park Hill site were to be selected, it would be necessary to connect the new mint to the Union Pacific rail lines by means of a spur track crossing Smith Road. While the cost of building the connecting line would be borne by the Mint, we want to be assured in advance that whatever authorizations or licenses are required for the construction of the spur track would be issued by the appropriate City or State authorities.

Your cooperation in this matter is very much appreciated.

Sincerely yours,

/s/

Mary Brooks
Director of the Mint

cc: Frank Rhea ✓
Elting Arnold
Pat Schrouder



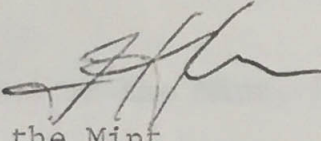
Keep Freedom in Your Future With U.S. Savings Bonds

UNITED STATES GOVERNMENT

Memorandum

TO : Files

DATE: January 10, 1974

FROM : Frank H. MacDonald 
Deputy Director of the Mint

SUBJECT: Site Selection, New U. S. Mint, Denver

On this date, after consulting with Mrs. Brooks, I advised Frank Rhea to tell the City of Denver that we are not interested in the Park Hill Golf Course site. We consider that there are too many potential delaying factors that could easily stretch the final conveyance as much as six months, e.g., concurrence of the entire Board of Governors, injunctions resulting from the environmental impact statement, and coordination required to bring utilities onto the site.

We are in no position to postpone our selection any longer, and we will stay with our letter to the Mayor of January 7, 1974, wherein we issued an ultimatum that the City obtain a definite commitment from the railroad relative to the Platte River site by January 21. Notwithstanding this commitment, or if the commitment is in the negative, we shall issue an environmental impact statement for the Denver Federal Center. We consider this to be the only positive approach available to us to insure that a site is selected and A/E negotiations can commence on a schedule commensurate with our needs.



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

UNITED STATES GOVERNMENT

Memorandum

TO : Mrs. Mary Brooks, Director of the Mint

DATE: December 13, 1973

FROM : Frank W. Rhea, Bureau of the Mint, Facilities Project Manager

SUBJECT: New Denver Mint Site Analysis

1. In accordance with instructions received from Mr. MacDonald on December 12, 1973, herewith is an analysis of two possible sites for the New Denver Mint. The sites in question are (1) the northwest corner of the Denver Federal Center (DFC), and (2) a site in the northwest portion of Stapleton International Airport, north of Interstate Highway I-70 and fronting on Quebec Street (QS).

2. Analysis and comparison of the two sites has been based on all foreseen relevant factors. A discussion of these factors follows:

a. Industrial Engineering Considerations

Both sites are ideal with respect to available area and dimensions. Both are adequate regarding foundation conditions. The QS is in a low area near a creek which would cause some problems in keeping basements dry. Utilities are available at both locations, but the DFC has considerable advantage because of lower rates due to combining loads with existing Government usage, plus the availability of sufficient steam from the existing central heating plant to provide heat for the Mint structures.

Rail service is within 100 feet at the DFC, whereas a spur track about two miles in length would have to be constructed to connect the Quebec Site with Rocky Mountain Arsenal trackage. Truck access is better at QS, as the site is within $\frac{1}{2}$ mile of Interstate I-70. Site preparation costs would be about the same at both locations.

b. Environmental Impact

Neither site would have any significant adverse impact on the environment. Fish and wildlife, historic places, and displacement of families and commercial enterprises are not involved at either location. Low- and medium-cost housing is available near both, with a small plus to QS on this factor. Transportation access for employees would be better at DFC, as this site is closer to the center of gravity of present Mint employee residences and has much better public transportation service. Potential air and water pollution are about the same, with a slight advantage to QS due to the prevailing easterly air movement and its location in the northeast perimeter of the metropolitan area.



*Transmitted 12/13 @
11:30 a.m. (H. H. H. H. H.)
(rec'd)*

c. Site Aesthetics

The DFC is much better in this regard, as the surrounding site environment is a known existing fact, and this environment is attractive and appropriate. At QS there are large adjacent tracts of land available for development, with little likelihood of development control by the Mint to assure maintenance of a continued appropriate environment, particularly as this site is in a generally industrial area.

d. Tourist Access

Both sites are in relatively poor locations to attract incidental public visitors, as they are approximately 8 miles from the City center. Access by bus tour groups would be about equal.

e. Miscellaneous Factors

At DFC there would be excellent flexibility for expansion, temporary storage of strip in outside areas and in other Government buildings, coordination of transportation, use of day care centers, etc. Also, external security would be enhanced by virtue of being on a large existing Government installation, with a GSA Security Force being available to augment the Mint Security Force. The QS site has the political advantage of being in the City of Denver, but this site is so close to the Rocky Mountain Arsenal that there could be criticism for not locating the Mint on land already owned by the Federal Government. The Quebec site would cost either \$1.5 million, or an informal commitment that the City would obtain the present Mint upon completion of the new Mint, versus no cost for DFC. Also, the QS is fairly close to nerve gas stored at Rocky Mountain Arsenal, with time length of this storage indefinite.

3. Following is a numerical rating (on a scale of 5) of the two sites on the factors discussed above:

	<u>DFC</u>	<u>QS</u>
Industrial Engineering Considerations	5	4
Environmental Impact	4	4
Site Aesthetics	5	2
Tourist Access	3	3
Miscellaneous Factors	5	2
	<u>22</u>	<u>15</u>

4. The Denver Federal Center site is by far the better of the two sites. If the City of Denver cannot resolve the railroad problem relating to the selected South Platte site, it is recommended that the DFC site be selected, consistent with complying with requirements of the National Environmental Policy Act.

GENERAL SERVICES ADMINISTRATION

Region 8

Denver, Colorado Re 802258

Denver Federal Center

Denver, CO 80225



March 27, 1973

March 27, 1973

Mr. Frank W. Rhea

Facilities Project Manager

Honorable W. H. McNichols, Jr.

Mayor of Denver

City and County Building

Denver, Colorado 80202

Dear Mayor McNichols:

I am pleased to transmit with this letter a copy of the formal agreement, approved by the Department of the Treasury and the U.S. General Services Administration, in connection with the acquisition of the proposed site for the new Denver Mint facility.

You may consider this agreement definite and appropriate to form the basis for final negotiations and agreement between the City and County of Denver and the U.S. General Services Administration. I am informed that technical conferences have already been scheduled between City officials and representatives of the General Services Administration for the purpose of clarifying all technical considerations.

Please be assured that if I may be of any assistance in this matter, all you need do is call on me. If you need further assistance, please feel free to call on me.

Sincerely,

Sincerely,

MICHAEL J. NORTON

Regional Administrator

Regional Administrator

Enclosure

Enclosures

cc: Mr. Frank W. Rhea

Facilities Project Manager

Bureau of the Mint

320 West Colfax Avenue

Denver, Colorado 80204

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION



Region 8
Denver Federal Center
Denver, CO 80225

March 27, 1973

Mr. Frank W. Rhea
Facilities Project Manager
Bureau of the Mint
Denver Mint
320 West Colfax Avenue
Denver, Colorado 80204

Dear Mr. Rhea:

Thank you for your letter of March 26, 1973, in which you informed me that the Department of the Treasury is in full agreement with the text of the proposed agreement in connection with acquisition of the proposed site for the new Denver Mint facility.

I have today officially forwarded the proposed agreement to the Mayor of the City and County of Denver. A copy of this proposed agreement is enclosed.

As you know, conferences have been scheduled to clarify preliminary technical matters. When all parties are in agreement, I will let you know.

In the meantime, if I may be of any further assistance to you or to other officials of the Department of the Treasury, please feel free to call on me.

Sincerely,

MICHAEL J. NORTON
Regional Administrator

Enclosures



OFFICE OF
SUPERINTENDENT

THE DEPARTMENT OF THE TREASURY

UNITED STATES MINT

DENVER, COLO. 80204

March 26, 1973

Mr. Michael J. Norton
Regional Administrator
General Services Administration
Denver Federal Center
Denver, Colorado 80226

Dear Mr. Norton:

Reference is made to a letter to you from Mr. Warren F. Brecht, Assistant Secretary of the Treasury for Administration, dated March 19, 1973, pertaining to the draft of the proposed agreement to be presented to the City of Denver regarding the site for the new Denver Mint. This letter included comments on the draft agreement dated December 19, 1972, and the draft agreement dated March 2, 1973. As you are aware, your Regional Counsel, Mr. Mathews, myself, and Mr. Dave Gess reworked the proposed agreement after your receipt of Mr. Brecht's letter. I have been in conversation this date with Treasury attorneys and with Mr. Mathews, and minor additional changes in the revision dated March 23 have been agreed to by all concerned. I have been authorized to inform you that with these minor changes, the Treasury Department authorizes your agency to present this proposed agreement formally to the City of Denver and to proceed with the negotiation of subject agreement with the City.

Sincerely

FRANK W. RHEA
Facilities Project Manager
Bureau of the Mint
Denver Mint
320 West Colfax Avenue
Denver, Colorado 80204

Car

Treasury Approved Revision as of March 26, 1973

Agreement

Contract No. _____

KNOW ALL MEN BY THESE PRESENTS:

THIS AGREEMENT, entered in this _____ day of _____ 1973,
by and between the United States of America, acting through the
Administrator of General Services, under and pursuant to the powers and
authority contained in the provisions of the Federal Property and Adminis-
trative Services Act of 1949 (63 Stat. 377), as amended, the Public Buildings
Act of 1959 (73 Stat. 479), as amended, and regulations and orders
promulgated thereunder, hereinafter referred to as the "United States" and
the City and County of Denver, Colorado, a Municipal Corporation, by its
Mayor in accordance with authorizing resolution No. _____, hereinafter
referred to as the "City."

WITNESSETH THAT:

WHEREAS:

The Secretary of the Treasury is authorized, acting through the
Administrator of General Services, to acquire suitable sites, design and
construct buildings for the mint of the United States at Denver, pursuant
to 31 U.S.C. 261 and 291;

The parties hereto desire to provide a new mint facility on a site which has the advantage of good location relative to the manufacture of coins, transportation, labor market and adequate utilities;

Appropriations have been made available, pursuant to Public Law 92-49 approved July 9, 1971, in the amount of \$1,500,000 for the purchase of a site for the new mint facility;

The City has agreed to assemble as a land package a site of approximately thirty-eight (38) acres of land in the City and County of Denver as described in Schedule A, attached hereto and made a part hereof; and to convey the assembled site to the United States free and clear of all liens and encumbrances and prepared for conveyance in accordance with the terms and conditions of this agreement;

The United States is prepared to acquire the site for the new mint facility;

NOW, THEREFORE, each of the parties hereto for and in consideration of the aforesaid premises and of the mutual obligations herein; hereby covenant and agree as follows:

ARTICLE I

GENERAL TERMS OF CONVEYANCE OF SITE

Sec. 1 - Assembly of Site

Subject to all the terms, conditions and covenants of this Agreement, the City agrees to acquire at its own expense title to approximately twenty-five

(25) acres of privately-owned property west of the South Platte River and convey said property together with approximately thirteen (13) acres of contiguous City-owned property, all shown on Schedule A, the Survey, attached hereto and made a part hereof, to the United States as the site for the new Denver Mint not later than August 1, 1974. The City agrees to commence acquisition of the privately owned land referred to herein as soon as possible but not later than thirty (30) days after execution of this Agreement.

Sec. 2 - Sales and Purchase Price

The City will sell and convey the 38-acre assembled site to the United States and the United States will purchase the site for the sum of one million five hundred thousand dollars (\$1,500,000). The sum of money provided for payment under this section shall constitute the United States sole monetary obligation pertaining to the acquisition of the assembled site prepared for conveyance in accordance with this agreement, and performance of all duties of the City hereunder, which sum shall be paid by U.S. Treasury check drawn to the order of the City. The City is aware and acknowledges that the payment provided for herein is substantially below the appraised fair market value of the assembled site to be conveyed as provided by this Agreement and thus knowingly waives any and all entitlements to the benefits provided for under Public Law 91-646, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and any amendments thereto (84 Stat. 1894, 42 U.S.C. 4601).

Sec. 3 - Conveyance

The City shall convey to the United States fee simple title to the site described in Schedule B, Metes and Bounds Description, attached hereto and made a part hereof, by delivery of a Warranty Deed upon payment as provided in Section 2 of this Agreement; subject to the easements as shown on Schedule C, Site Development Plan, attached hereto and made a part hereof. The conveyance shall be made not later than August 1, 1974.

Sec. 4 - Satisfaction of Title and Title Evidence

The City shall deliver or cause to be delivered to the United States, at the earliest possible date after the execution of this Agreement, but not later than December 31, 1973, without cost, evidence showing title to the assembled site in the City, which may consist of title abstracts, certificate of title or other evidence of title satisfaction to the Attorney General of the United States, or his designee.

Upon written notice by the United States of any title defects, the City agrees to deliver or cause to be delivered at its expense, such deeds, releases, or other title instruments as required by the United States to cure such defects, so that the title conveyed to the United States is free of all mineral rights, easements, restrictions, and leases, except as otherwise may be specifically waived by the United States or expressly provided for in this Agreement.

All judgments, taxes, assessments, liens or encumbrances of any sort, existing or inchoate, shall be satisfied by the City at its expense prior to transfer of title to the United States.

Sec. 5 - Dedication and Vacation of Existing Streets

The City shall furnish to the United States prior to conveyance authenticated evidence showing that:

(a) Public alleys, streets, and roads abutting the site have been duly dedicated and legally accepted by the proper authorities of the City and that such public ways have been actually opened for public access and are improved, maintained and kept open for use as are other public streets, roads, and alleys in the City.

(b) The City has vacated or caused to be vacated portions of 7th, 8th, 9th, 10th and Water Streets as shown on Schedule C, The Site Development Plan, and as required for the proper development and utilization of the site for the proposed mint facility.

(c) The City has, or will, replot the route for the Market-Blake Parkway access to downtown Denver so that it will not cross the assembled site outside the area delineated therefor on Schedule C, or in any way interfere with the use and operation of the mint facility, or unnecessarily interfere with the use of said delineated area for automobile parking.

Sec. 6 - Removal of Sewer, Water, Gas and Electric Lines

The City shall obtain commitments for and perform, or cause to be performed, all work provided for herein without cost to the United States prior to conveyance of title to the United States, except as may otherwise be agreed upon in writing between the parties. The City shall:

(a) Prior to July 1, 1974 abandon or relocate ^{all} sewer lines from the assembled site, as shown ~~in red~~ on Schedule C; except the existing storm and sanitary sewers crossing the site generally in an east-west direction, as shown in blue on Schedule C, the latter of which will be re-located by the United States at its expense during the site preparation phase of the project. The City will provide as necessary off-site easements and connections which are necessary for completion of the work by the United States.

(b) Furnish a firm commitment from the Denver Water Board to remove, abandon and/or relocate its water lines shown in green on Schedule C, from within the assembled site boundary prior to July 1, 1974.

(c) Furnish a firm commitment from the Public Service Company of Colorado to remove prior to July 1, 1974, subsurface gas lines, including the main gas line supplying north and west Denver, and all of its surface and/or subsurface electric power lines and associated appurtenances from within the boundary lines of the assembled site, as shown in yellow on Schedule C.

(d) Provide for the off-site rerouting of any presently planned, or future proposed sewer connections from within the assembled site boundary.

X (e) Prior to July 1, 1974 obtain commitments that would require any power lines which are relocated or constructed in proximity to the assembled site to be placed underground to enhance to the greatest practicable extent environmental aesthetics.

(f) The United States has the right to abandon or relocate any subsurface utilities discovered at a future date which are not shown on Schedule C, and commitments as provided in this Sec. 6, paragraphs (b) and (c) shall also provide for such right in the United States.

(g) Prior to July 1, 1974 secure and provide to the United States waivers from all parties performing work as provided herein for any possible entitlements to benefits under Public Law 91-646, any amendments thereto and any regulations and guidelines issued pursuant thereto.

Sec. 7 - Uniform Relocation Act Requirement

The City at its expense agrees to fulfill any and all obligations imposed on this project by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, and any amendments thereto, with regard to its acquisition and assembly of the site to be conveyed to the United States by acquiring property in accordance therewith and providing relocation payments and assistance to eligible displaced persons within the area described in Schedule B of this Agreement. Such

undertaking by the City shall be in accordance with Federal regulations and guidelines issued pursuant to the Relocation Act (41 CFR 101-18.3).

In addition the City represents that it will, at its own expense, assure the complete fulfillment of any applicable requirements of the State of Colorado Relocation Assistance Act of 1971 and any regulations issued pursuant thereto. This provision requires delivery of the assembled site without any occupants or right to occupancy of any part of said site or any buildings situated thereon.

Sec. 8 Delivery of Deed and Possession

The City shall deliver the Deed and possession of the site to the United States on the date the purchase price is paid to the City, or on such other date as the parties hereto may otherwise mutually agree upon in writing. Payment of the purchase price and delivery of the Deed shall be at the principal offices of the City, or at such other place as is mutually satisfactory to the parties.

Sec. 9 - Arrangement for Utilities - Access to Site

The City shall, without expense to the United States, prior to completion of the new Denver Mint, provide or cause to be provided at the boundaries of the site at locations designated by the United States all necessary utilities (electric, gas, water, telephone, sewer) required in the construction and occupancy of the new Denver Mint as of the time or times when such utilities shall be required for said construction or occupancy, except as may otherwise be agreed upon in writing between the parties hereto.

Sec. 10 - Survey and Subsoil Information - Access to Site

Within sixty (60) days from the date of this Agreement the City will grant and assure access to the site and all portions thereof or obtain and furnish permits for access thereto from those in possession so that the United States or its authorized representative or contractor may obtain topographic data, soil samples, and subsurface information where required for the preparation of drawings and specifications for the mint buildings to be erected on the site.

Sec. 11 - Notice

Any notice or communication necessary under and pertaining to this Agreement by either party to the other shall be sufficiently given or delivered if dispatched by registered or certified mail, postage prepaid, return receipt requested, and

(a) In the case of a notice or communication to the United States the address is as follows:

Regional Administrator
General Services Administration
Denver Federal Center, Building 41
Denver, Colorado 80225

(b) In the case of a notice or communication to the City the address is as follows:

Mayor of Denver
Denver, Colorado 80202

Sec. 12 - Nondiscrimination in Employment

GSA Form 1714 entitled "Equal Opportunity Clause" marked Schedule "D" is attached hereto and made a part hereof. The terms "Contractor" and "Contract" as used therein shall be deemed to mean the City and this Agreement, respectively.

Sec. 13 - Counterparts

This Agreement is executed in four (4) counterparts, each of which shall be deemed to be an original, and such counterparts shall constitute one and the same instrument.

ARTICLE II

TERMINATION OF AGREEMENT

If the City does not acquire fee simple title to the portions of the site not now owned by it and complete transfer of title to the entire site to the United States prior to the date specified in Sec. 3, Article I, and perform all duties imposed upon it by Sections 4, 5, 6, 7 and 9 of Article I, prior to said date or the date otherwise provided for such duty or duties as the case may be, this Agreement may be terminated at the election of the United States upon giving written notice thereof to the City. In the event of such termination, neither party shall be under any liability whatsoever to the other party.

ARTICLE III

MISCELLANEOUS PROVISIONS

Sec. 1 - Modification of Agreement

No variation or departure from any other provisions of this Agreement shall be binding on the City or the United States unless agreed upon in writing by the City and United States.

Sec. 2 - Officials not to Benefit

No member of or Delegate to the Congress, or Resident Commissioner, shall be admitted to any share or part of this Agreement or to any benefit that may arise thereupon, but this Section shall not be construed to extend to this Agreement if made with a corporation for its general benefit.

Sec. 3 - Conflict of Interest

No official or employee of the City shall have any personal interest, direct or indirect, in this Agreement, nor shall any such official or employee participate in any decision relating to this Agreement which affects his personal interest or the interests of any corporation, partnership, or association in which he is, directly or indirectly, interested.

No official or employee of the City shall be personally liable to the United States or any successor in interest in the event of any default or breach by the City or for any amount which may become due to the United States or a successor or on any obligations under the terms of this Agreement.

Sec. 4 - Covenant Against Contingent Fees

The City warrants that no person or selling agency has been employed

or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee except bona fide employees or bona fide established commercial selling agencies maintained by the City for the purpose of securing business. For breach or violation of this warranty, the United States shall have the right to declare this Agreement terminated, without liability or in its discretion to deduct from the purchase price the full amount of such commission, percentage, brokerage or contingent fee.

Sec. 5 - The City Represents That:

(a) It has not employed or retained any company or person (other than a full-time bona fide employee working solely for the City) to solicit or secure this Agreement: and

(b) It has not paid or agreed to pay any company or person any fee, commission, percentage, or brokerage fee, contingent upon or resulting from the making of this Agreement, and agrees to furnish information relating thereto as requested by the United States.

Sec. 6 - Examination of Records

The City agrees that the Comptroller General of the United States or any of his duly authorized representatives or GSA shall, until the expiration of three (3) years after final action under this Agreement, have access to and the right to examine any directly pertinent books, documents, papers, and records of the City related to this Agreement.

IN WITNESS WHEREOF, the City has caused this Agreement to be duly executed in its name and behalf and its seal to be hereunto affixed and attested; and the United States has caused the same to be duly executed by General Services Administration, on or as of the day and year first above written.

UNITED STATES OF AMERICA
Acting by and through the
Administrator of General Services

Date: _____

By: _____
Michael J. Norton
Regional Administrator, Region 8
General Services Administration

THE CITY OF DENVER, COLORADO
A Municipal Corporation

Date: _____

By: _____
Mayor

Frost

Danver Street
John Henry, Bill D. Sid C. Ben V.
Mary B. Frank M. Ray O'Brien
Ray Shopp Bob Fredlund, Warren Smith

10-24-72

4289

8429

Fredlund - 964-2881

Brooks - 208 324 4151 (Kays)
Idaho

MacDonald - 212 264 1727
1729 (Nugent)
(Conatango)

SUMMARY OF THE FINANCIAL ASPECTS OF THE U.S. MINT PROJECT

Cost to Denver

Land donation (Crescent Street Yards)	\$	800,000
Land acquisition		2,000,000 (1)
Relocation		2,500,000 (1)
Demolition	<i>Construction</i>	325,000 (2)
Appraisals & miscellaneous land costs		50,000 (3)
Sewer relocation	<i>Federal</i>	570,000
Low pressure gas line relocation		<u>100,000</u>
Gross cost	\$	6,345,000
Federal funds available		<u>1,500,000</u>
Net City cost	\$	4,845,000

-
- (1) Land office estimate.
 - (2) Building Department estimate.
 - (3) Assumes acquisition with present land office staff.

These figures assume: 1) that the Public Service Company will remove all electric power lines without cost to the City; 2) that the Water Department will remove all water lines without cost to the City; and 3) that the cost of rerouting the high pressure gas line (which serves all of northwest Denver) does not exceed \$100,000.

No costs are included for relocating Water Street, assuming the Colorado Division of Highways' development of new frontage roads to Interstate 25.

It has been assumed that the proposed Metro Sewer District interceptor can be relocated without cost to the City.

In order to accommodate the GSA and Treasury Department request that nothing cross their land, the Transportation Division has had to change the Market-Blake Parkway plans on a southerly alignment.

Handwritten calculations:
~~895,000~~
~~395,000~~
~~79,000~~
~~3,871,000~~
~~800,000~~
~~3,071,000~~

The GSA requested that Interstate 25 right-of-way be trimmed; however, this request involves the Federal Department of Transportation and that rights-of-way are carefully guarded. It appears unreasonable to tamper with Interstate 25 right-of-way. The Mint needs the maximum possible width of the subject property in the vicinity of the 23rd Avenue overpass.

There is currently a distance of 140 feet from the center line of Highway 25 to the east right-of-way line. The frontage roads need room. An additional ten feet is actually needed to achieve the minimum desirable for this purpose. This would create a 150-foot right-of-way, which is the figure we feel the Colorado Division of Highways and the Federal Department of Transportation will insist upon as a minimum.

person under purchase contract
agreement with GSA

But government must deliver
site to Gov't at Fair Market
Value

Consider pulling out of Omnibus
Legislation and do separate
bill authorizing Lease-purchase
in dependent of GSA guidelines
Big problem is going before Public
Works Committee - They would not
approve - not economical
Also this would be another year lost
New risk seems on horizon

City is enthusiastic enough about our
selected site that they will work it
out

We will send out letters for OMB
approval of reprogramming Philadelphia
Reprogram obligation with outlay
delayed until next F.Y.

Mr. MacDonald

June 9, 1972

Mr. Hollyfield

New Denver Mint - Site Acquisition

At a meeting in your office on June 8, 1972, attended by Mint officials and Mr. Alan Canter of the Planning Office of the City of Denver, I became aware that the City of Denver wanted to obtain the full \$1,500,000 which was appropriated in the 1972 budget for acquisition of a site for the new Denver Mint. In considering the amounts to be transferred to the City of Denver for the proposed 30 acres, I believe it is desirable for you and other officials to be aware of the plan which was stated in the 1972 budget justification, i.e., that \$1.5 million was expected to cover the full cost of the site. The justification included the following paragraph:

"The \$1.50 million requested is predicated on the need for a land area of 30 acres and is intended to cover GSA administrative costs, surveys, soil investigation and legal fees as well. Investigation of several sites in the Denver area, although very preliminary, indicates that current cost of land in a desirable location may be in the order of \$1 per square foot."

After returning to my office from the meeting, I reviewed this background, including the House and Senate Appropriations Committee hearings. I did not find any particular reference to the items intended to be covered by the \$1.5 million in the House hearings. However, at the Senate hearing, in a discussion between Senator Allott and Mrs. Brooks, it was brought out that the cost of the land was anticipated to be \$1,306,800 for 30 acres, or \$1 per square foot. Mrs. Brooks stated that "We are hoping if we get this million and a half dollars, that this would help us start an engineering study and to acquire the land."

After our 1972 appropriation was approved, we transferred \$1,500,000 to the GSA. Minor amounts have already been obligated by GSA on the Denver project, amounting to about \$5,000 through the month of April.

A change in the proposed purchase price of land from approximately \$1 per square foot to \$1.15 (\$1,500,000 for 1,306,800 square feet) is not an unreasonable difference. However, if the full amount appropriated is to be transferred to the City of Denver, then some other arrangements will have to be made for financing the other costs which were contemplated in the original appropriation request. At the present time, we have \$79,000 in reserve which might be apportioned by OMB and applied toward this purpose. If the other costs exceed that figure, then we would have to find some other way to finance them.

cc: Messrs. Ambrose
Goldman
Rhea
Vaughan

Mrs. Betty Higby, Superintendent,
and Mr. Frank W. Rhea ✓

May 2, 1972

H. Frost, Jr.

People mover - Regional Transportation District

At a meeting May 1 with Mr. Harry L. Parrish, Jr., Executive Director of the Regional Transportation District, and Mr. James H. Graebner, Transportation Engineer, Regional Transportation District, the subject of proposed people mover public transportation facility was discussed.

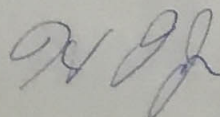
Regional Transportation District revealed some tentative plans to have this facility and Market Street through way cross the Valley Highway at Twentieth Street. We had anticipated crossing at Nineteenth Street intersection. They were warned that the present plan would essentially put a rail facility right through one of the mint buildings.

The RTD also had tentatively scheduled a passenger station to be located in the new mint facility. Their feeling is that the new mint will be a great aid to the public transportation facility, and they want to do everything possible to service the mint, both from the standpoint of operating personnel and tourists. It was brought to their attention that the mint service was certainly in favor of the facility, also probably in favor of the station but that the station would have to be located outside of the mint property because a U. S. mint has particularly rigid security policies. They agreed to this.

They have not reached any decisions as to final route locations, and they seemed happy to receive information from the mint service. They simply did not know what the mint service had in mind. They will be in touch with us and with the city engineers and city planning department to make certain that an equitable route is chosen. We accepted an invitation to an overall policy meeting that they will hold on May 10.

This meeting was worthwhile because it pinpointed a critical problem that had no attention to date.

cc: Dr. A. J. Goldman
Deputy Superintendent



File 11
20

Site Work

Expedited Basic - From Start of Design

Program Service 2 Months

Circumferentially - Topo, Foundation Investigation

Blot out generalized layout

Work include

Earthwork

Drainage

Within 700' of final location

Work, paving, manure, etc. - Etc. - Etc. - Etc.

Being in R.R. spur

Complete layout 1 Month

Complete Plans & Specs 1 Month

Build 1 Month

Award, ATP 1/2 Month

Start Work 5 1/2 months
Say 6 months

Estimated Contract Amount - 2,000,000

Problem: Start Design 1 year 75

Building ready for installation - 1 Jan 78

Equipment ready for shipment July 77

Possible Early Equipment Procurements

Blanking Presses

Coining Presses

Other items ~~are~~ involve small dollar amounts
and/or need additional detailed design for
before determining quantities & writing procurement
specifications

10.5 Billion per year

Blanking Presses

Total required -

12

Available

8

Buy

4

Coining Presses

Total Required

85

Available

53

32

Costs

Blanking 4 @ ^(est 74) 166,000 × 1.03 × 1.10 = 480,392

Coining 32 @ ^(est 73) 61,500 × 1.03 × 1.12 × 1.10 = 2,497,408

\$ 2,977,800

Say \$ 3,000,000

Time: Issue IFB - 1 Month

Money: Time

20 months

Excludes to end 75

Assume Award

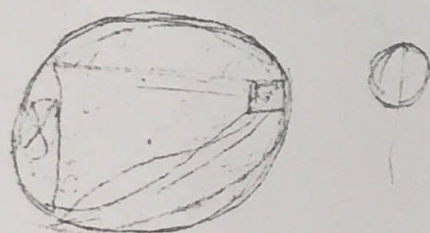
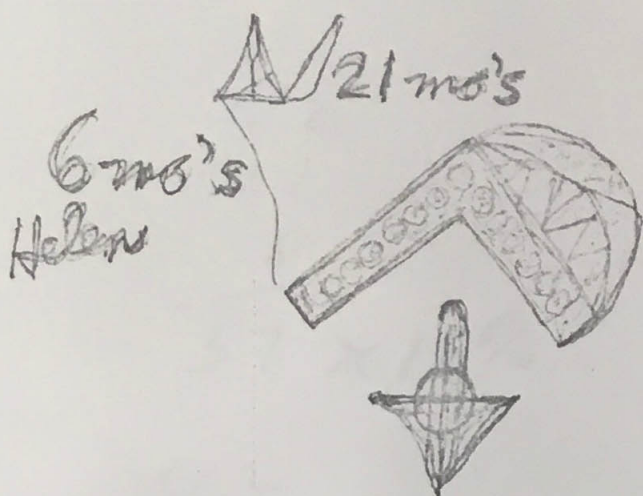
Bid

Around

1/2

2 Months

1 July



17
3
11

Site Work
Est. Cost \$2,000,000

Time: From Design Start

Turned

Program Services - 8 Weeks 2 Mo's
Equipment Contract 4 Mo's

Program Spec 1 Mo's

Bldg Concept 2 Mo's
Site Plan & Spec 1 Mo

Bid 11 Mo's

Ground RFP 1/2

Start Site Work 10 1/2 months

Expedited Program Services 2 Mo's
Contract - Type Foundation Investigation

Program Spec
8 weeks
2 Mo's
Bid 1 Mo

Block out layout
Site Grading, bring in roads, RR, bring
railroad to 2nd St. & 1st St., work with on
Cul-de-sac & road

$$\begin{array}{r} 42 \\ 11 \\ 8 \\ \hline 57 \times 10^2 \end{array}$$

$$\begin{array}{r} 42 \\ 11 \\ 6 \\ \hline 59 \times 10^2 = 6 \times 2 = 12 \end{array}$$

$$\begin{array}{r} 135 \\ 4 \\ \hline 540 \\ 129,600,000 \end{array}$$

$$\begin{array}{r} 135 \\ 60 \\ \hline 8100 \end{array}$$

$$\begin{array}{r} 32,400 \\ 4000 \\ \hline 129,600,000 \end{array}$$

$$\begin{array}{r} 135 \\ 4 \\ \hline 540 \end{array}$$

$$\begin{array}{r} 22.1 \\ 8 \\ \hline 17.92 \end{array}$$

$$\begin{array}{r} 240 \\ 20 \\ \hline 4800 \end{array}$$

$$139345920$$

$$540$$

$$\begin{array}{r} 4300.8 \\ 32,400 \\ \hline 139,345,920 \end{array}$$

$$\begin{array}{r} 270 \\ 60 \\ \hline 16200 \end{array}$$

$$\begin{array}{r} 16128000 \\ 17.92 \\ \hline 23.61 \end{array}$$

$$\begin{array}{r} 7168000 \\ 40000 \\ \hline 1792 \end{array}$$

$$\begin{array}{r} 1792 \end{array}$$

$$22.48$$

THE DEPARTMENT OF THE TREASURY
BUREAU OF THE MINT

May 2, 1972

Mrs. Higby:

This is latest draft from
Mr. Fredlund, re New Denver Mint
Site Selection.

Please let us know your
comments and suggestions as
soon as possible.

F. H. MacDonald

F. H. MacDonald

Room 2064

Ext. 5877

Latest Draft 5/2/72

Mr. Rhea

DRAFT - R. R. Fredlund - April 28, 1972

TO: (1) Mr. Eugene T. Rossides
Assistant Secretary for Enforcement, Tariff and Trade Affairs, and Operations

(2) Mr. Warren F. Brecht
Assistant Secretary for Administration

FROM: William L. Dickey

SUBJECT: Selection of Site for New Denver Mint

I. Introduction

In accordance with your memorandum to me of April 13, 1972 (copy attached), convening a Site Selection Board with myself as Chairman, for the purpose of making recommendations on the selection of one of the sites evaluated in the GSA report, our Board is presenting the following report and recommendations:

II. First Round of Selection Process

We considered each of the 9 sites evaluated in the GSA report. In line with the reasons set forth in your memorandum convening this Board, we gave particular consideration to the partially city-owned site in the downtown area along the Platte River.

We first eliminated from further consideration No. 4 - Navajo Site, and No. 5 - Allied Chemical Site. Neither of these sites are for sale, and neither of them have the advantages of the Platte River Site to which we gave primary consideration.

We next eliminated No. 6 - South High Site from consideration. The Mint at this location would be entirely out of place with the surrounding residential areas. In addition, the site has not been made available by the City.

No. 8 - Samsonite Site was next eliminated as it was not for sale, and according to the GSA report, there would be considerable expense in relocating existing improvements. It is also too small.

*Comments placed
to Mr. Brecht
0915, 10 May 1972
JMD*

No. 7 - Union Pacific Pullman Site was eliminated from further consideration in that it was not offered for sale. Also, it is at a considerable distance from the downtown area, without any outstanding redeeming or offsetting advantages. Site No. 7 is also in a heavily industrialized area and would provide no aesthetic values.

III. Second Round Selection Consideration

Sites remaining after our initial round of review and examination, to which we gave still further consideration, were Sites No. 1, 2, 3 and 9. After rather extensive consideration of No. 1 - Park Hill, it was decided that the Golf Course Site is not really suitable for the new Mint. The setting of this site, near to a residential area, but on the border of one existing, sort of "non descript" industrial area, really did not elicit an enthusiastic response from any members of the Board. The Park Hill Site, as indicated in the GSA report, has much to recommend it, but it simply does not provide now, or with respect to the future, a suitable aesthetic and really fitting environment for a structure with the particularly distinctive and majestic characteristics of a U. S. Mint.

No. 3 - The Denver Union Terminal Site, was also extensively considered, but here again, it was finally eliminated for selection because of the fact that at least part of the structure of the new Mint would have to be built over five railroad tracks which would run through the front of the site. In addition, there are other adverse aesthetic features with respect to the frontage provided for the entrance and for the tourist flow, plus many old, multi-story commercial warehouses in the area which might remain for some length of time. Adding to these disadvantages is the fact that an extensive relocation of railroad trackage at the rear of the Depot would be required

which could take a considerable period of time before it would be possible to begin with the construction.

IV. Final Selection Process

In our final selection round, there remained No. 2 - The South Platte River Site to which we have given priority consideration because of the intergovernmental relationships and urban renewal benefits which pertain, as well as its substantial aesthetic potentials, and No. 9 - Union Pacific Railroad Site.

The Union Pacific Railroad Site would be our strongest second choice. It is a little small, consisting of approximately 24 acres, but it is of excellent configuration and is offered at 55 cents per square foot, a very reasonable price. Advantages and disadvantages include:

ADVANTAGES

1. It is in a new, developing area and will be an excellent environment for the facility.
2. It is unimproved and immediately available upon purchase, and there would be no demolition costs involved.
3. Configuration of site permits the most advantageous configuration for Mint buildings.
4. It is for sale by the owners at a very reasonable price. It is probably the cheapest site under consideration.

DISADVANTAGES

1. It is 11 miles or 24 minutes driving time from the Central Business District.
2. Construction here would not enhance the Central Business District, or help in the urban renewal area.

3. This site would not provide a distinctive setting for the important functions of the U.S. Government. The surrounding area is not public transportation & developing & there would be no control over the type of buildings in the contiguous area.

4. Public transportation to the site is poor & the site would be difficult to access. The location is an outlying N.W. part of Denver with no accessibility to downtown.

ADVANTAGES

5. There is a spur track available.
6. Public transportation is provided on Peoria Street just east of the site.
7. New motels with restaurants and coffee shops are nearby.
8. It is in the city limits of Denver.
9. There is adequate low and middle income housing just north of the site in Montbello.
10. It is not in a flood plain.
11. All utilities are available to the site.
12. It is easily accessible for the traveling public via I-70.
13. The Mint at this location would be easily visible from I-70.

DISADVANTAGES

B. The remote location would not be too favorable for the tourist attraction standpoint.

In summary, second to Site No. 2, we like Site No. 9. It would be the least costly and present fewest construction problems. Nevertheless, it must take second place.

V. The South Platte River Site

Finally, with respect to No. 2 - The South Platte River Site, we strongly recommend its selection as our "first choice." This recommendation is made not only in line with the considerations set forth in your convening memorandum, but also after thoroughly considering all other aspects pertinent to the site, including its outstanding aesthetic potentials and its suitability as a tourist attraction. Accordingly, we propose that we proceed immediately

to endeavor to acquire the entire 33.4 acre site discussed with the Mayor of Denver as the site for the new Mint. Mayor McNichols, representatives from the City Council, and the Chairman of the Planning Commission, have all expressed their interest for the location of the Mint in this area in terms of how well it would fit in with their future redevelopment plans for the City of Denver, as well as provide a downtown location for a primary tourist attraction. They pointed out to us the plans the City has with respect to the 1976 Olympics--the redevelopment into a beautiful park-like setting of the Rice Railroad Yards along the South Platte River--the construction of "people movers" and other special transportation arrangements in the area with respect to the proposed Olympic structures as well as the existing sports complex--and generally indicated a high degree of enthusiasm for the South Platte River Site.

VI. Financing and Other Considerations Pertinent to the
South Platte River Site Acquisition

During a recent visit of Mayor McNichols to this Department, when we discussed with the Mayor the South Platte River Site, as well as the possibility of other City-owned land throughout the City, the Mayor proposed that the City acquire and offer to the Department, as one parcel, a total site of 33.4 acres, alongside the South Platte River, for the \$1.5 million which has been appropriated to the Department for site acquisition. We indicated to the Mayor and to his associates from the City of Denver that we would be most interested and receptive to such an offer, providing no unusual flooding or subsurface soil conditions were encountered so as to make construction impractical or uneconomical, and if all other site configuration and environmental problems could be satisfactorily resolved. The Mayor indicated he planned to return to Denver with the view of attempting to acquire the entire requisite site for offer to the Department.

Since the meeting with the Mayor, there have been several contacts with the Lands Division of the Department of Public Works in the City of Denver which indicate to us that, unless some financing arrangement which we have not as yet determined can be developed, it may be difficult, if not impossible, for the City to put together and offer to the Department as one parcel the entire South Platte River Site. Unless the entire 33.4 acre site, plus the additional part of the City right-of-way alongside the valley highway which we require is made available, the South Platte River Site would not be large enough, and of the proper width, for the construction of the new Mint facility.

On the other hand, assuming that it will be possible, within a reasonable period of time for the City to acquire and offer to this Department for the total funds available, the entire 33.4 acre site, and the other above cited considerations are satisfactorily resolved, then we believe all of the other many advantages of this site overcome the remaining disadvantages.

VII. Flood Plain Consideration

In terms of these disadvantages of the Platte River Site, we have given most careful consideration to its location on the South Platte River flood plain. A memorandum of one of our committee members, Mr. Frank W. Rhea, the Project Manager for the Bureau of the Mint, discusses this quite thoroughly and is attached as an exhibit to this report. The conclusion is that "the new Denver Mint can be constructed on the South Platte River site with an extremely low flood risk factor and with no unusual costs incident to constructing in a flood plain that would not be inherent in constructing the Mint in other sites in the City of Denver area."

VIII. Construction and Configuration Considerations

We have also carefully considered the problems with respect to the relocation of utility line, storm sewers, the shape of the site in relationship

to its width and the pertinent considerations to the building configuration alternatives available to us. We are convinced that, if the entire site as proposed can be acquired, buildings, parking and loading areas can be appropriately laid out within the dimensions of the available site.

As to subsoil conditions, vis-a-vis the cost of construction, these have also been evaluated, and based upon data currently available, our best engineering opinion is that they would not present any particularly unusual problems or expense. (See Mr. Rhea's conclusion in VII above.)

IX. Access

We are assured by the City that necessary transportation arrangements to and from the site can be made available, and there will be no problems in this regard. Adequate rail facilities are, of course, already available. The Mayor has also indicated his willingness to relocate Water Street which, if retained in its present location, would bisect the site.

X. Environmental Impact

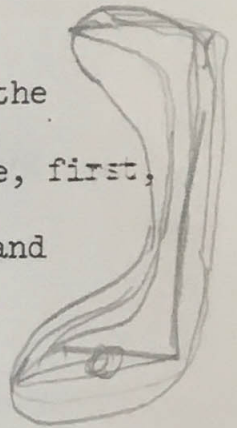
We are in the process now of preparing a new draft environmental statement setting forth all of the required environmental impact considerations and alternatives for the Platte River Site. This, of course, should be circulated to the appropriate Governmental bodies for their specific comments, and their views considered, and any necessary hearings held, before our site acquisition can be completely finalized. However, this activity will proceed concurrently with our explorations on financing possibilities with the City and County of Denver.

XI. Conclusion and Recommendations

In conclusion, our recommendations are (1) No. 2 - The South Platte River Site as our first choice, and (2) No. 9 - The Union Pacific Railroad Site as

our second choice, in the event the entire South Platte River Site cannot be acquired and appropriately used for the Mint construction.

However, if it seems to become appropriate to proceed to acquire the Union Pacific Railroad Site, a clear finding must be made, at that time, first, as to the availability and suitability of a site at the fairly nearby and Government-owned Rocky Mountain arsenal.



William L. Dickey, Chairman
Deputy Assistant Secretary for
Enforcement, Tariff and Trade
Affairs, and Operations

Mary T. Brooks, Vice Chairman
Director of the Mint

Frank H. MacDonald
Deputy Director of the Mint

Betty Higby
Superintendent, Denver Mint

Frank W. Rhea
Facilities Project Manager

Robert R. Fredlund
Director of Administrative Programs

Attachments

UNITED STATES GOVERNMENT

The Department of the Treasury
Washington, D.C.

Memorandum

Mr. William L. Dickey

TO : Deputy Assistant Secretary for Enforcement,
Tariff and Trade Affairs, and Operations

DATE: APR 13 1972

FROM : Eugene T. Rossides -- J. Elton Greenlee

SUBJECT: Site Selection for New Denver Mint

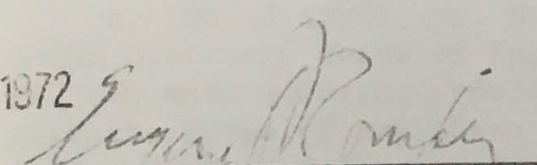
Mr. A. F. Sampson, Commissioner of Public Buildings Service, by letter of April 6, 1972, transmitted to the Department of the Treasury, the Site Investigation Report prepared by the Denver Regional Office of the General Services Administration. This Site Report provides an evaluation of the various locations which were considered by GSA in response to the site selection criteria which were furnished with Mr. Betts' letter of August 31, 1971.

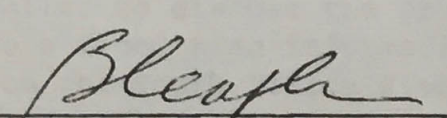
For the purpose of making recommendations on the selection of one of the sites evaluated in the GSA report, you are designated to serve as Chairman of a Site Selection Board. This Board will be comprised of the Honorable Mary T. Brooks, Director of the Mint as Vice Chairman, Mr. Frank MacDonald, Deputy Director of the Mint, the Honorable Betty Higby, Superintendent, Denver Mint, Colonel Frank W. Rhea, Facilities Project Manager, and Mr. Robert R. Fredlund, Director of Administrative Programs. The Office of General Counsel will assign counsel to work with the Board as required.

It is recognized that discussions have already been held with the Mayor and representatives of the Council and Planning Commission of Denver, relative to the possibility acquiring a site along with Platte River. This site consists of land, part of which is currently owned by the City, and additional parcels which would be required in order to provide a sufficiently large site for the new Mint. It would be our view that your Board would give priority consideration to this site in light of these discussions, and especially in consideration of the intergovernmental relationships and urban renewal benefits which apply. At the same time, however, we wish to assure that the Board carefully considers advantages and disadvantages of other available sites, as well as the costs, relocation expenses, engineering and construction problems presented by each.

Your Board should be prepared to present its report and recommendations not later than April 28, 1972.

APR 14 1972


Assistant Secretary for Enforcement,
Tariff and Trade Affairs, and
Operations


Acting Assistant Secretary for
Administration



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

April 14, 1972

MEMORANDUM FOR THE RECORD

SUBJECT: Flood Plain Implications of the Proposed South Platte River Site, New Denver Mint

1. At the request of Mr. MacDonald, Deputy Director, Bureau of the Mint, the undersigned reviewed the subject implications of the South Platte River site for the new Denver Mint. The following specific actions were taken in this review:

a. Letters from the Omaha District Corps of Engineers to Mr. Gregory Cavanagh, Regional Director, Public Building Services, Region 8, GSA, dated 16 July 1971 and 23 July 1971, were analyzed in detail. These letters, and particularly the 23 July 1971 letter, confirmed that the 1965 flood approximated a 100 year flood and that during this flood the water reached elevation 5,190 adjacent to the center of the proposed site. These letters also state that, with the Chatfield Dam in operation, a 100 year flood would be confined within the river's banks and would reach elevation 5,182, and a standard project flood would reach elevation 5,189, both elevations at the approximate center of the proposed site.

b. A call was made to Mr. R. G. Burnett, Chief, Engineering Division, Omaha District, Corps of Engineers, on 11 April 1972. Mr. Burnett confirmed that the Chatfield Dam, now under construction, is scheduled for closure in late summer 1973 and that the Mt. Carbon Dam on Bear Creek is now under design, with funds available for acquisition of land required for this project. Mr. Burnett said he would have his flood plain expert review the specifics of this particular site and have him contact me later. In response to a specific question, Mr. Burnett provided the following official definition of a standard project flood:

"The standard project flood is representative of the critical concentration of runoff from the most severe combination of precipitation and snow melt, if pertinent, that is reasonably characteristic of the drainage basin involved."

Mr. Burnett stated further that the Corps does not associate a specific frequency with a standard project flood, but that such a flood is representative of the largest flood reasonably expected to occur and would be exceeded only on rare occasions. (Thus, the expected frequency of occurrence is much less than once in a hundred years. A standard project flood is more in the order of a 250-500 year flood.)

c. On 12 April, Mr. Norm Gau, Chief of Flood Plain Management, Omaha District, Corps of Engineers, called to discuss the proposed site. Mr. Gau made reference specifically to a flood plan information study that the Corps of Engineers had done on the South Platte River and informed me that a copy of this study was available in the office of the Colorado Water Conservation Board in Denver. Mr. Gau stated that

this flood plain study provided the up-to-date information with respect to the proposed Denver Mint site and recommended that I review the study. Mr. Gau reiterated the information provided the previous day by Mr. Burnett and added that the Mt. Carbon Dam affect on reduction of flood water elevations at the proposed site would be on the order of one foot. Mr. Gau stated that the Chatfield Dam is the prime contributor to flood reductions in the reach of the South Platte and, thus, any uncertainties with respect to completion of Mt. Carbon Dam are not material.

d. On 12 April, I reviewed the flood plain study with Mr. Stan Miller, Colorado Water Conservation Board. The official title of this study prepared by the Omaha District of the Corps of Engineers is as follows: "Flood Plan Information Study, South Platte River Basin, Colorado, Denver Metropolitan Region, Updated August 1968." The study contains a general statement that it reflects reduced discharges resulting from the operation of the Chatfield and Mt. Carbon Dams. The study also has the following notes on the cover page:

(1) The 1965 flood has been included in the updated hydrologic analysis and has increased the basic discharges for a given flood frequency.

(2) An intermediate regional flood is a flood having a one percent probability, or an average frequency of once in 100 years.

The following surface water elevations were extracted from the graphs and maps included in the subject Flood Plain Study:

	<u>Elevations</u>	
	<u>Standard Project Flood</u>	<u>Intermediate Regional Flood</u>
Drop Structure (vicinity of the upstream end of the proposed site)	5,193	5,187
7th Street bridge (near site center)	5,189.5	5,182
Speer Blvd.(downstream end of site)	5,185	5,178

2. Further analysis of this matter reveals the following:

a. The 100 year flood, with the Chatfield Dam in operation, would be confined within the banks of the South Platte River at the site. In effect, this situation means that the site as is has a flood damage protection factor of 99 percent.

b. Similarly, with the Chatfield Dam in operation, during a

standard project flood there would be flooding of a small portion of the site as it exists, immediately adjacent to the river. However, due to the necessity to accomplish site grading to accommodate the large buildings involved and due to the nature of existing soils, there will be a requirement to provide select fill material under any buildings or structures located near the river. This fill material will be planned for a finish elevation at least two feet above the predicted water elevations during a standard project flood. This will provide a flood damage protection factor in excess of 99.5 percent.

c. In addition, during the design of the new Denver Mint, the possibility of floodproofing the lower portions of the buildings will be considered and analyzed. If the buildings can be floodproofed at minimal cost, this option can be selected, resulting in a flood damage prevention factor of 99.9+ percent.

3. With respect to subsurface water at the site, no unusual problems are anticipated. The ground water table, of course, varies proportionately with the water level in the nearby South Platte River. However, all planning to date is based on slab-on-grade construction with the only foreseen requirement for basement or trench areas those necessary to provide space for piping and drains to recirculate process liquids and to discharge effluent into the South Platte River. These basement areas can be protected from seepage by proper treatment of basement walls and by installation of sump pumps.

4. In summary, the conclusion is that the new Denver Mint can be constructed on the South Platte River site with an extremely low flood risk factor and with no unusual costs incident to constructing in a flood plain that would not be inherent in constructing the Mint in other sites in the City of Denver area."

Frank W. Rhea

FRANK W. RHEA, P.E.
Facilities Project Manager
Bureau of the Mint

FWR:edg

Distribution:

Mr. W. L. Dickey
Mrs. M. Brooks
Mr. F. H. MacDonald
Mr. R. R. Fredlund
Dr. A. J. Goldman
Mr. G. Ambrose
Mrs. B. Higby
Mr. C. Miller
Mr. H. Frost, Jr.
Project Files

UNITED STATES GOVERNMENT

The Department of the Treasury
Washington, D.C.

Memorandum

TO : Mr. William L. Dickey
Deputy Assistant Secretary for Enforcement,
Tariff and Trade Affairs, and Operations

DATE: APR 13 1972

FROM : Eugene T. Rossides -- J. Elton Greenlee

SUBJECT: Site Selection for New Denver Mint

Mr. A. F. Sampson, Commissioner of Public Buildings Service, by letter of April 6, 1972, transmitted to the Department of the Treasury, the Site Investigation Report prepared by the Denver Regional Office of the General Services Administration. This Site Report provides an evaluation of the various locations which were considered by GSA in response to the site selection criteria which were furnished with Mr. Betts' letter of August 31, 1971.

For the purpose of making recommendations on the selection of one of the sites evaluated in the GSA report, you are designated to serve as Chairman of a Site Selection Board. This Board will be comprised of the Honorable Mary T. Brooks, Director of the Mint as Vice Chairman, Mr. Frank MacDonald, Deputy Director of the Mint, the Honorable Betty Higby, Superintendent, Denver Mint, Colonel Frank W. Rhea, Facilities Project Manager, and Mr. Robert R. Fredlund, Director of Administrative Programs. The Office of General Counsel will assign counsel to work with the Board as required.

It is recognized that discussions have already been held with the Mayor and representatives of the Council and Planning Commission of Denver, relative to the possibility acquiring a site along with Platte River. This site consists of land, part of which is currently owned by the City, and additional parcels which would be required in order to provide a sufficiently large site for the new Mint. It would be our view that your Board would give priority consideration to this site in light of these discussions, and especially in consideration of the intergovernmental relationships and urban renewal benefits which apply. At the same time, however, we wish to assure that the Board carefully considers advantages and disadvantages of other available sites, as well as the costs, relocation expenses, engineering and construction problems presented by each.

Your Board should be prepared to present its report and recommendations not later than April 28, 1972.

APR 14 1972

Eugene T. Rossides
Assistant Secretary for Enforcement,
Tariff and Trade Affairs, and
Operations

Bleah
Acting Assistant Secretary for
Administration



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

THE DEPARTMENT OF THE TREASURY

DATE March 3, 1972

TO Mr. Frank MacDonald

I believe this clarifies our stance with GSA with respect to the requirement that the report only include evaluations on sites within the city and county of Denver.

Bob

Robert R. Fredlund

*1- Col Rhee
1- my file
1- Central file*

Robert R. Fredlund

Director of Administrative Programs

Room 2324

Ext. 2881

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION

Public Buildings Service
Washington, D.C. 20405



FEB 29 1972

Mr. Robert R. Fredlund
Director of Administrative Programs
Department of the Treasury
Washington, D.C. 20220

Dear Mr. Fredlund:

This refers to your letter of February 18 and our meeting on February 24 concerning the site for the proposed new Mint in Denver.

I have issued new instructions to our Denver Regional Office with respect to their further action on this project. I believe they are consistent with the decisions reached at our meeting. A copy of the instructions is enclosed for your review. Should you have any suggestions as to their revision please let me know.

Sincerely,

A handwritten signature in dark ink, which appears to read "Loy M. Shipp, Jr.", is written over the typed name.

LOY M. SHIPP, JR.
Assistant Commissioner
for Space Management

Enclosure

Acquisition Division - PRA

Denver, Colorado - Proposed New Mint

Gregory Cavanagh
Regional Director, PES
Denver, Colorado

Confirming our phone conversation of February 24, your office is requested within the next 30 days to revise the site investigation report for the above project forwarded to this office by memorandum of February 15.

Based on our meeting with Treasury officials, Robert Freduland, William L. Dickey and Frank McDonald, the report should incorporate the following:

1. No references or determinations with respect to the National Environmental Policy Act are required since the Department, as the lead agency, has this responsibility.
2. Data concerning sites located outside the city and county of Denver will not be included in the report. However, the transmittal letter to the Department shall state that GSA's investigation included sites in the general area of Denver but reported only on those within the Department's delineated area.
3. The investigation shall be expanded, without advertising, to include potential sites estimated to cost up to \$10 million and range from 20 to 30 acres. Further, should your investigation disclose sites somewhat smaller than 20 acres, but otherwise considered desirable Mint sites, they should also be included. All sites should be available for construction within three years.
4. The views of the Regional Administrator, Department of Housing and Urban Development, with respect to the various sites, shall be obtained in writing in conformance with the Memorandum of Understanding between GSA and DHUD.

Prior to finalizing your revised report, Treasury officials shall be afforded an opportunity to again review the findings of your investigation.

The two reports forwarded to this office are being returned under separate cover.

Respectfully,
Loy M. Shipp, Jr.

LOY M. SHIPP, JR.
Assistant Commissioner
for Space Management

Separate cover:
2 Site Investigation Reports

cc:
Robert E. Waggoner
Regional Administrator, GSA - SA

Memorandum

Col. J. Rhea
Department of the Treasury
Washington, D.C.

TO : Mr. Dickey

DATE: March 3, 1972

FROM : Roy T. Englert *RT*

SUBJECT: Purchasing of Options for Future Property Acquisition

In response to your memorandum of February 29, 1972, Mrs. Lloyd has advised me as follows:

"I agree that the Treasury has authority to purchase options for land for the Denver Mint and can thus authorize the GSA to obtain such options for us. The funds for the Denver Mint are made available (Public Law 92-49) under the authority of 31 U.S.C. 291-294, the law authorizing the Secretary of the Treasury, acting through the GSA, to construct and operate mints. Section 291 provides authority to the Secretary to acquire suitable sites 'by purchase, condemnation, donation, exchange, or otherwise.' The use of an option to purchase would certainly come within this authority."



DEPUTY ASSISTANT SECRETARY
OF THE
TREASURY

TREASURY DEPARTMENT

WASHINGTON, D.C. 20220

FEB 29 1972

TO: Mr. Roy Englert

FROM: William L. Dickey (Signed) William L. Dickey

SUBJECT: Purchasing of Options for Future Property Acquisition

The General Services Administration is presently serving as our agent for acquisition of a site for the new Denver Mint. Funds in the amount of \$1,500,000 were appropriated in FY 1972 for this acquisition.

Several sites under consideration are either not owned totally by one party or the property value exceeds the appropriation. If we were to choose one of these sites it would be necessary to obtain options for all desired parcels.

The General Services Administration has advised us that their regulations do not allow them to purchase options on property that they intend to acquire for themselves. They could, however, purchase options for us if our regulations do not preclude such action.

I would appreciate your comments concerning our authority to purchase options for future acquisition of real property.

✓ cc: Col. Rhea

F. H. MacDonald
Deputy Director of the Mint

February 18, 1972

Carl A. Landis
Attorney

Selection of a Site for a New Denver Mint

This will supplement the information which I related to you this morning about whether appropriated funds may be used to buy a site and build the new Denver Mint outside the boundaries of Denver, but near that city.

As you know, 31 U. S. Code 261 (1971 Supp.) provides:

"The different mints and assay offices shall be--

"First. The mint of the United States at Philadelphia.

"Second. The mint of the United States at Denver.

"Third. The United States assay office at New York.

"Fourth. The United States assay office at San Francisco."

I have not found anything in the legislative history of the above statute which amplifies the meaning of the words "at Denver", or similar words used in that statute with reference to the facilities at Philadelphia, New York, and San Francisco.

I have not found any decision of the courts or the Treasury Department interpreting that term. Two attorneys in the General Counsel's office have told me that they are not aware of any interpretation of the term by the General Counsel's office.

This morning I talked informally with Mr. John W. Moore, Assistant General Counsel, Office of the Comptroller General of the United States. I called his attention to the above quoted statute, and I said Public Law 92-49, enacted July 9, 1971, authorizes an appropriation of \$1,500,000 for expenses necessary for construction of Mint facilities. Then I asked him whether he believes funds appropriated under Public Law 92-49 may be used to buy a site and build the new Denver mint outside the boundaries of Denver, but near that city. I said several sites are under consideration, and one or more of them which are outside the Denver city limits may be desirable because of neighborhood, rail and highway facilities, size, cost, etc.

Mr. Moore asked whether any member of Congress, or any other citizen, or any group of citizens, has objected to locating the new Denver Mint near Denver. I said I do not know of any such objection. The City of Denver, the County of Denver, and Colorado's First Congressional District are co-extensive. Mr. Moore suggested that building the new Denver Mint in a Congressional District other than the district which includes Denver might generate questions.

F - Ref. Denver N. Mint

Mr. Moore then said he believes his office would not object to the use of appropriated funds for the purchase of a site, and the construction of a new Denver Mint on that site, outside the city limits of Denver, provided the site is within the metropolitan area of the City of Denver. He could not, of course, define the metropolitan area of the City of Denver. He said the City of Denver officials or the U. S. Department of Commerce may have information on that point.

Mr. Moore's opinion is an informal opinion given to us as a courtesy, it is not binding upon the Comptroller General, and so it should not be cited or quoted outside of the Treasury Department.

UNITED STATES GOVERNMENT

Memorandum

THE DEPARTMENT OF THE TREASURY
BUREAU OF THE MINT

TO : Mint Records Section

DATE: January 17, 1972

FROM : F. H. MacDonald
Deputy Director of the Mint

SUBJECT: Site Acquisition New Mint Facility Denver, Colorado

On the morning of January 12, 1972, Mr. William Dickey, Deputy Assistant Secretary, Treasury; Mrs. Betty Higby, Charlie Miller, Hildreth Frost, Denver Mint, and Frank H. MacDonald met with Robert E. Waggoner, Regional Administrator, General Services Administration, Denver, Colorado, to discuss the progress of site acquisition for the new Denver facility.

Fred McFarlan, GSA Project Coordinator, presented three sites for consideration:

- (1) ^{South} The North Platte River Site;
- (2) A site located in the railyard to the north of the Denver Railroad Terminal Building; and
- (3) An area adjacent to the golf course in the proximity of the Stapleton International Airport.

Mr. Waggoner stated that two other sites had been considered:

- (1) A property on the Rocky Mountain Arsenal, which is not in the City of Denver limitation; and
- (2) A property near the Rocky Mountain Arsenal, but within the limits of the City of Denver.

For numerous reasons which include the difficulties in annexing the portion of the Rocky Mountain Arsenal from Adams County into the City of Denver, the Rocky Mountain Arsenal site has been in effect rejected by all parties. But because of the political implications, the property just within the City limits of Denver close to the Rocky Mountain Arsenal has also been rejected. The reasoning is that were we to acquire that property at the cost of \$1-1/2 million, the public may rightfully be concerned as to why we did not acquire, at no cost, a similar tract of land at the Rocky Mountain Arsenal.

Now, the advantages and disadvantages of the three sites under consideration are as follows:

The golf course location is a clear unencumbered parcel of land. It is in the near proximity of an industrial park containing numerous warehouses



and factory-type buildings. I feel, and with the concurrence of my associates, that were we to build an industrial facility of our own in that area, we may well lose our identity and the uniqueness we desire for the Mint facility, as other industrial buildings may well be in or anticipated to be constructed, in that same vicinity.

The railyard site would require us to accept proviso that the railroad companies maintain ground rights for five tracks of passenger service to go through the proposed site. We could have air rights which would start approximately 12 feet above the track elevation. The remainder of the railroad facilities and tracks are scheduled for removal at some time span between 1976 and 1978, which would not be consistent or would not accommodate our program for having a completely operational facility by 1980. The question also arises as to the possibility that the railroad companies would request in selling the property to us that we would absorb a portion of their relocation costs, or that a portion of the costs would be included within the purchase price. The area involved does not fall within the realm of Urban Redevelopment and therefore the construction surrounding the area is not presently anticipated to be controlled. We may again lose our identity to warehouse and other industrial facilities.

The North Platte River site at present offers only 13 acres which belong to the City of Denver. Another 13 to 18 acres exist along the river. They are owned by a variety of interests. The City nor the GSA, so far as we know, have approached these other interests to determine whether or not they would be willing to negotiate the sale of the properties to the United States Government. The site is isolated by the river on one side and Interstate 70 on the other side, which would provide us a buffer to retain our identity to stand as a unique facility and therefore maintain the tourist and public interest that we desire.

The GSA preparation and presentation was very poor and an apparently small amount of work had gone into analyzing the pros and cons of the three sites. Many questions remain unanswered.

Mr. Dickey and I met with Regional Administrator Robert Waggoner for breakfast on the 13th of January 1972, and stated that we were a little bit concerned with their preparation for presentation for this meeting and I guess, indirectly, told him that we wanted a site that would allow us to maintain our identity and we did want them to pursue the possibility of obtaining the areas now presently not owned by the city on the North Platte River site. He also will obtain aerial photographs so that we may do a further analysis. We plan to do several further analyses which we certainly feel the GSA should have accomplished. We shall pursue with our own personnel in Denver.

cc: Mrs. Brooks
Mr. Dickey

LAND AND BUILDING

Preliminary investigation with the General Services Administration indicates it may be feasible to have a facility for the new Mint at Denver, Colorado, constructed by a lessor for lease or lease with option to purchase. A cost/benefit analysis will take some time to complete. GSA and the Public Works Committees of the Congress are understood to prefer Federal construction of buildings of this kind. A new Mint was recently built in Philadelphia by Federal funds and cost approximately \$23 million for the building and \$18 million for equipment.

Some of the critical requirements of the site to be selected for this facility are:

- (a) Must be within the City of Denver.
- (b) Must be adequate for expansion -- with respect to increased building size or numbers of buildings -- adequate for visitors as well as employee parking. Approximately 30 acre site is required.
- (c) Must have access to adequate electrical, natural gas, water, sewerage and utility systems.
- (d) Public transportation should be accessible and available for personnel. All types of commercial transportation must be available for the shipment of raw materials and coin.
- (e) Nearby security and fire protection.
- (f) Physical condition of soil must be suitable for facility to be constructed thereon.

The facility to be provided will be unique in certain ways inasmuch as the buildings will, by necessity, include:

- (a) A design of floor loading from 80 pounds per square foot (office areas) to 1000 PSF (manufacturing areas).
- (b) Extensive requirement for electrical service and electrical distribution due to high demand equipment to be installed such as induction furnaces for melting. This involves a number of large transformer vaults and exceptionally heavy electrical input circuits.
- (c) Steam demand possibly in the order of 15,000 to 20,000 lbs/hr.
- (d) Extensive need for dry plant air.

- (e) Anti-pollution devices to remove contaminants from exhaust air and waste water disposal.
- (f) Extensive massive, isolated foundations to support heavy production machinery.

Contemplated alignment of processes are planned to incorporate:

- (a) A separate building for melting and casting metal alloys to be used in coin manufacture.
- (b) A single story -- in line -- operation from melting and casting, rolling, bonding through the blanking operation. Processing of blanks through the final coining process is yet to be determined. This phase of the operation may be accomplished in a multi-story facility or perhaps also in a single-story facility.
- (c) Consideration may be given to provide a separate administrative office and storeroom facility independent of the manufacturing plant.

It is also important to note that the facility will require a very high degree of security which will require compartmentized storage areas with vault doors, vault penetration detection systems, building opening alarm systems, and possibly closed circuit TV.

Possible advantages of acquisition by lease include:

- (a) Lesser requirements for initial appropriations for capital outlay.
- (b) Relatively shorter-term commitment to the selected manufacturing processes.
- (c) Lease arrangements could be made to permit Government purchase at subsequent time.

Among the disadvantages foreseen by leasing, as opposed to Government ownership, are the following:

- (a) Possibility of high lease costs because of unlikely adaptability of a Mint-designed building to other uses in event of failure to renew or termination of the contractual arrangement.
- (b) Economic considerations surrounding the required heavy investment in internal utility facilities to accommodate Mint processes.

- (c) Assuming public viewing accommodations were provided, there might be further lack of adaptability of the building for other purposes at any time.

It could be that some of the disadvantages would be avoided if the leasing agreement should provide for reversion to Government ownership at expiration of the lease period.

EQUIPMENT

While a cost/benefit study, consistent with that being made for the building, will be developed to estimate the economic advantage as between ownership and leasing, the leasing of at least some elements of equipment appears to be feasible. Indications are, however, that such leasing is very expensive. It is possible to lease with option to purchase or to acquire ownership at the expiration of pre-established amortization periods -- taking account of operating shifts.

The Mint will require specialized equipment of several types, costing in the range of \$23 million, the most of which will be impossible or unlikely of adaptability to other (non-Mint) uses. Examples of the specialized equipment to be installed in the new Mint include raw material (metal) weighing systems, high-volume electrical induction furnaces, reduction roll-mills, surface milling equipment, metal strip cleaning and bonding line, annealing furnaces, and blanking and coining presses.

Possible advantages of leasing, as best as can be foreseen, would include the following:

- (a) Avoidance of appropriation requirements during the construction stages and the spreading of Government outlay over a much greater number of years.
- (b) Possibility of easier changeover of selected types of equipment in event of obsolescence.

Possible disadvantages of leasing would include the following:

- (a) Probable higher long-term costs of leasing over purchase of long-life equipment.
- (b) Impracticability of monitoring equipment design, configuration and installation in dealing through a prime contractor (middle man).

*Reg. Denied
New
Mint*

William L. Dickey
Deputy Assistant Secretary

April 29, 1970

Frederick W. Tate
Acting Director of the Mint

Coinage and Legislation About Mint Sites

As you know, Congress alone has the power to coin money. (U. S. Const., Art. 1, Sec. 8, Par. 5). States are denied the power to coin money. (U. S. Const., Art. 1, Sec. 10, Par. 1). This delegation of power was made to Congress exclusively to preserve the uniformity and the purity of our money standards and values.

Our Mints and Assay Offices have been established pursuant to Federal statutes. Mints are located in Philadelphia, Pennsylvania, and Denver, Colorado. Assay Offices are located in New York, New York, and San Francisco, California. The San Francisco Assay Office also operates as a mint. Statutory provisions for them will be found in 31 U. S. Code 261 (Supp 1970), which reads as follows:

"The different mints and assay offices shall be--

"First. The mint of the United States at Philadelphia.

"Second. The mint of the United States at Denver.

"Third. The United States assay office at New York.

"Fourth. The United States assay office at San Francisco."

As amended July 11, 1962, Pub. L. 87-534, § 1, 76 Stat. 155.

Mints and Assay Offices generally are located with due regard to the growing demands of the country's commercial and population centers.

Philadelphia Mint:

An Act of Congress, April 7, 1792 (1 Stat. 246) established a Mint at Philadelphia, then the nation's capital. It is considered the "mother" mint, since it is our first mint. Dies for all United States coins are made there.

Denver Mint:

The discovery of gold in 1858 in what is now the State of Colorado, and its production in large quantities, led the Government to purchase a private mint there in the fall of 1862. Transporting the gold to the Philadelphia Mint was not practical. The Denver Mint started operations in September 1863 as an assay office and later achieved full status as a mint.

my L. Treas. Report

P/O

L. Treas. Report

*Ref- Denver
New
mint*

William L. Dickey
Deputy Assistant Secretary

April 29, 1970

Frederick W. Tate
Acting Director of the Mint

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in the U.S. Treasury Report

San Francisco Assay Office:

An Act of Congress, July 3, 1852 (10 Stat. 11), authorized a branch of the Mint in California "...to be located by the Secretary of the Treasury." The United States Mint at San Francisco was created because gold mined in California hills increased to quantities too large for facilities at the distant Philadelphia Mint and much time was taken in shipping it on a hazardous journey. In March 1955, coinage operations at San Francisco were discontinued. Reactivation of minting operations was authorized by the Coinage Act of 1965 (79 Stat. 256, 31 U. S. C. 293 (Supp. 1970)).

New York Assay Office:

An Act of Congress of March 3, 1853, Chapter XCVII, authorized the establishment of an Assay Office in the City of New York for the receipt and for the melting, refining, parting, and assaying of gold and silver bullion and foreign coin, and for casting it into bars, ingots, or disks.

Former Mint Institutions:

In the following cities, the Government has had other mints, which are no longer in operation: Dahlonega, Georgia (1838-1861); Charlotte, North Carolina (1837-1861); New Orleans, Louisiana (1838-1861, 1879-1909); and Carson City, Nevada (1870-1893).

Mint statistics indicate a percentage increase in the total distribution of coins to Federal Reserve Banks serving the Eastern section of the United States during the fiscal year ending June 30, 1969, as compared to distributions made to them for the fiscal year ending June 30, 1959. However, these statistics also show a percentage decrease in the total distribution of coins to the Federal Reserve Banks serving the Midwestern and Western sections of the United States for the same years. See attached table.

Federal Reserve Banks in the Eastern part of the United States generally are served by the Philadelphia Mint. Federal Reserve Banks in the Midwest generally are served by the Denver Mint. Federal Reserve Banks in the far Western sections generally are served by the San Francisco Assay Office.

Attachment

PAQ

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FRD

See about X. 2

Life Survey Information File

GENERAL SERVICES ADMINISTRATION
SPECIFICATIONS FOR GSA SITE INVESTIGATION REPORT

FORMAT. The report shall be bound in book fashion in the left margin, in a durable cover with identification of the project for which the Site Investigation is being made on the face of the cover. The paper used shall be of size 8 x 10-1/2 inches. All pages shall be numbered consecutively including all exhibits. Each important heading shall be shown in the Table of Contents. The report shall contain tabulations, schedules, exhibits, and other data necessary to set forth all the site selection factors considered by the Site Investigation Team. In order to facilitate their removal for study and review purposes, maps, photographs, and other exhibits included in the addenda shall be placed in 8-1/4 x 11-1/4 inch envelopes which are bound into the report in book fashion in the left margin.

OUTLINE. To provide uniformity for GSA files, the report will be divided into four parts as outlined below. Within these parts the outline may vary to the extent that the character and size of the project and the community in which it is to be located may be such as to call for additional data in some cases, and less data in others. Generally, however, all items must be considered by the Site Investigation Team and included in the report. The omission of any item shall be explained in the report.

PART I - INTRODUCTION

1. **TITLE PAGE.** The Title Page shall include the same information that is shown on the cover, i.e., (1) the name of the project, (2) the name of the city, county and state.
2. **TABLE OF CONTENTS.**
3. **LETTER OF TRANSMITTAL.** The letter of transmittal shall be in the form of a memorandum from the responsible GSA Regional Administrator to the Commissioner, PBS. It shall contain the following information:
 - a. The purpose of the report.
 - b. The identity of the project.
 - c. The date(s) on which the site investigation was made.
 - d. The identity of the three outstanding potential sites recommended by the Site Investigation Team, and the estimated acquisition cost of each of those sites.
 - e. Total amount of funds available for site acquisition.
 - f. A statement verifying the fact that the appropriate Post Office Department Regional Office was contacted at the time of the Site Investigation or immediately prior thereto, and it was ascertained that the Post Office Department has no interest, in connection with any of its programs, in any of the recommended sites. (Required only where GSA-POD project is not involved.)
 - g. The recommendation of the Regional Administrator and the effective date of those recommendations.
 - h. The signature of the Regional Administrator.
4. **AERIAL PHOTOGRAPH OR MAP.** The delineated area, county and Federal buildings, civic centers, the central business district of the city, urban renewal projects, in or on the periphery of the preferred or delineated area, and the three recommended sites are to be identified on this photograph or map.

PART II - FACTUAL DATA

5. **ECONOMIC CHARACTERISTICS OF THE CITY.**
 - a. Population and growth trends.
 - b. A description of the economic base of the community.
 - c. Economic conditions and data relating to the level of business activity in the community, including the trend and rate of growth, or decline, of that activity.
 - d. The size and location of the central business district, its rate of growth, or decline, and its direction and rate of expansion (if any).
6. **COMMUNITY FACILITIES.**
 - a. Local public transportation facilities and the extent of use by the public, including a delineation of principal routes and principal terminals from which local transportation services emanate.
 - b. The availability, cost and extent of use of public parking facilities within or in close proximity to the delineated area. If no area is delineated, discuss the availability, cost and extent of use of such facilities in or in close proximity to the general area or preferred location for the proposed building.
 - c. Major thoroughfares and highways in existence or under construction which will have an effect on the area which is preferred or has been delineated as an acceptable or preferred location for the proposed building.
 - d. Plans for improvement of existing major thoroughfares and highways which will have an effect on the area which is preferred or delineated as an acceptable location for the proposed building.
 - e. Urban renewal projects, private or public, existing, under construction, or planned. If a federally assisted urban renewal project with the preferred or delineated area is being planned, give the status of the proposed project and the estimated date by which a going urban renewal project will come into existence as evidenced by a contract between the Local Redevelopment Authority and the Government.
7. **COMMUNITY PLANNING.**
 - a. Zoning ordinances, and master plans relating to the preferred or delineated area and the possible effect of those ordinances and plans on the proposed building in respect to set back, height, bulk, off-street parking requirements, and development of the general areas under consideration.
 - b. Civic centers, existing, under construction, or planned.
8. **SITE REQUIREMENTS.** This shall be a statement of the specific site requirements as stated in the Site Investigation Directive issued by the Commissioner, PBS.
9. **THE SITE INVESTIGATION.**
 - a. The date on which the Site Investigation Directive was issued.
 - b. The date(s) on which the appropriate public notices and/or advertisements soliciting offers (if any) were issued.
 - c. The date(s) on which the Site Investigation was conducted.
 - d. The name and official position of each member of the Site Investigation Team. (Include members from other agencies).
 - e. Total number of offered, and unoffered, but potential sites inspected by the site team.

PART III - ANALYSIS AND CONCLUSIONS

10. SYNOPSIS OF PROPERTIES OFFERED FOR INSPECTION

In this section of the report, list the properties offered for inspection, stating the following for each property:

- Location.
- Size (dimensions and square area).
- Name of offeror(s), and the capacity in which he (they) acted in making the offer.
- Name of purported owner(s).
- Asking price, if known.
- Whether the offered site is within the preferred or delineated area.

11. SYNOPSIS OF UNOFFERED BUT POTENTIAL SITES INSPECTED. The following information shall be given for each property inspected:

- Location.
- Size (dimensions and square area).
- Name of purported owner(s).
- Whether property is within the preferred or delineated area.

12. ELIMINATION OF UNDESIRABLE SITES.

a. A tabulation, giving the reasons for the elimination of undesirable sites shall be prepared. Sites having similar adverse characteristics, such as too remote, too small, unfavorable topography, too costly, unfavorable surroundings, etc., may be grouped under the appropriate classification. List each site under as many definite classifications as are reasons for its elimination.

b. All sites, except the three outstanding locations that meet the minimum site requirements as stated in the Site Investigation Directive, and are in conformance with GSA policy in respect to the location of Federal buildings as stated in PBS P 1600.5, shall be eliminated. The three remaining sites shall be discussed in detail under the topic Recommended Sites.

13. RECOMMENDED SITES. Each of the recommended sites shall be discussed in respect to conformity to site specifications as set forth in the Site Investigation Directive, and conformity with GSA policy in respect to the location of Federal buildings. The narrative concerning each of the recommended sites shall describe the dimensions of the site, its shape and total area, street frontages, estimated cost including severance damages, if any, and topographical characteristics, and shall discuss whether the recommended site is at a location or within an area for which civic officials have expressed a preference. GSA Form 1239, Recommended Sites-Characteristics, shall be completed for each recommended site and included as an exhibit in Part IV of the report. Any conditions which will result in the expenditure of funds for retaining walls, rock excavation, construction, removal, or relocation of utilities, demolition of structures, special construction features required in the proposed building due to topographical features, or sub-surface conditions shall be explained

in detail. An estimate as to the cost of performing any or all necessary work of this type in connection with the construction of the proposed building or preparation of the site, shall be furnished. The most significant advantages and disadvantages of each of the recommended sites shall be discussed. The discussion of the advantages and disadvantages of each site may consider the following, as well as other appropriate factors:

- Neighborhood environment, and the existence of objectionable smoke, noise, dust, obnoxious odors, etc.
- Sub-surface conditions.
- The nature of existing on-site improvements and the number of owners and/or tenants to be relocated if the property is acquired.
- Location in relation to the central business district and the direction and rate of growth (decline) of that area.
- Location in relation to existing population centers within the metropolitan area of the city and the direction and rate of growth (decline) of those areas.
- Proximity of public transportation
- Proximity of public parking facilities.
- Zoning and planning considerations having a significant effect on the site and design of the building.
- Convenience to the public.
- Convenience to employees.
- Special requirements of agencies which will occupy the building, (Post Office, Court, etc.).
- Public sentiment.

14. CORRELATION. The relative advantages and disadvantages of the recommended sites shall be weighed, due consideration being given to all factors pertinent to the selection of a site. In determining total estimated site costs, those elements of cost set forth on GSA Form 1239 shall be considered together with the estimated site acquisition cost.

15. CONCLUSIONS AND RECOMMENDATIONS. Under this heading, the conclusion of the site team in respect to the first, second and third choice site shall be stated.

16. APPROVAL BY REGIONAL DIRECTOR, PBS. The Regional Director, PBS, shall indicate approval of the conclusions and recommendations of the Site Investigation Team by affixing his signature to the report. When the proposed building is a joint GSA-POD project, the concurrence of the Regional Director - POD shall be obtained, and evidenced by a letter included in the report, or signature of the report itself. The report shall be forwarded by the Regional Director, PBS, to the Regional Administrator for signature and transmittal to the Commissioner, PBS.

17. FORMAT FOR SITE SELECTION BY THE REGIONAL ADMINISTRATOR. The procedure outlined in item 16 above shall be applicable, except that the Regional Administrator shall make the site selection, and such selection shall be preceded by a statement as to the authority under which he acts.

PART IV - EXHIBITS AND ADDENDA

The following exhibits, appearing in the order as listed below, should be included in each Site Investigation Report. In those instances where a public notice of an intent to conduct a site investigation was not issued, or appropriate maps are not available, such items may be excluded from the report provided the reason for the exclusion is stated.

- A copy of the Site Investigation Directive issued by the Commissioner, PBS.
- A copy of the public notice and/or advertisement issued.
- City map with all sites, offered as well as unoffered, but potential, identified.

- City transit lines map with recommended sites identified on the map.
- City zoning map - with recommended sites identified on the map.
- GSA Form 1239 - Recommended Sites - Characteristics, and supplemental narrative data.
- Photographs of the three recommended sites.
- References; identity of persons, public records and other sources, providing data which was included in the report.
- Other appropriate exhibits.

May 15, 1973

Honorable W. H. McNichols, Jr.
Mayor of Denver
Denver, Colorado 80202

Dear Mayor McNichols:

This is in response to Mr. John Stamm's letter of May 2, 1973 addressed to Mr. Frank Rhea of the Bureau of the Mint regarding utility requirements and other matters pertaining to the site agreement between the City of Denver and the United States Government.

Enclosed are 6 copies of GSA Form 1714, "Equal Opportunity Clause." Also enclosed is a set of prints which have been annotated to show details of what utilities will have to be removed from the site, the locations for on-site termination of utilities for the new Mint, and the location of a utility corridor wherein it would be agreeable for utilities requiring relocation to cross the site.

Regarding the question as to what utilities will have to be placed underground, it is our desire that there be no aboveground utility lines in the area between Highway I-25 and the South Platte River and between the I-25 crossing of the South Platte River on the south and Speer Boulevard on the north. This relates also to the question pertaining to the power line matter in Sec. 6(e) on Page 7 of the Draft Agreement. The existing 115 KV line on steel towers on the southern portion of the site must be relocated off-site and the electric power service into our on-site substation will need to be placed underground. We are not attempting to dictate the specifics of this relocation; but if the 115 KV line is relocated to the immediate east bank of the South Platte River, it would be aesthetically preferable to place these lines underground.

As to the question regarding the required size of all utilities, we have computed the figures listed below. These requirements are subject to some change as we proceed with detailed design of the facility; however,

we have calculated these requirements based on detailed process layouts and extrapolating from Philadelphia Mint usage and, therefore, believe the figures are accurate within plus or minus ten percent. We are planning the new Mint for an initial 1980 production requirement, plus making provisions for 100 percent production expansion. Thus, although our initial usage will be about one-half of ultimate usage, we feel it is prudent to size all lines and feeders to meet the ultimate requirements. Our calculated utilities requirements are as follows:

STEAM

It is our hope that we can connect to the Zuni Plant of Public Service Company to obtain steam for heat and airconditioning of the buildings. If this can be resolved with the Public Service Company, our average requirement during the heating season would be 30,000 pounds per hour at about 140 psig. Our maximum requirement in the coldest weather periods would be roughly twice this average. If it is not possible to connect to the Zuni Plant for building heating requirements, we would need an addition to the gas requirements stated below to provide for this heating.

ELECTRICITY

Our initial requirement is for a connected load of 35,000 KVA and the ultimate requirement for 50,000 KVA. Our average usage would be about 75 percent of both of these figures.

GAS

Our initial requirement is for 46,000 cubic feet per hour and our ultimate requirement is for 75,000 cubic feet per hour. This is what we would like to have from the Public Service Company. We realize there are problems with gas supply and distribution and are prepared to discuss this matter in more detail with the Public Service Company during our detailed design.

WATER

Our initial average requirement is for 300 gallons per minute and the ultimate is for an average of 600 gpm. Our peak ultimate would be about 900 gpm. These figures are for operational use only and should be increased to provide fire protection for buildings approximating 700,000 square feet.

SEWAGE

For planning purposes at this time, the operational water consumption figures are considered appropriate for determining sewage discharge.

TELEPHONES

Our requirement will be (both initial and ultimate) for approximately 100 lines with about 200 telephone instruments.

We do not know of any special protective covering required for any of the underground utilities other than those normally required in the area to provide for protection against water damage and corrosion. There will be extensive vehicular traffic plus railroad siding crossings over some of these utility lines. In our design and construction, we will provide for "bridging" of these utilities to prevent any damage from surface loads.

Another requirement that we want to make clear, which is not covered in the present Draft Agreement, is that we will need access to the site for employee automobiles and truck/trailers from the south end of the site. This means that the design of the new elevated Market-Blake Parkway needs to be such that we will have a minimum of 14 feet vertical clearance and a minimum of 24 feet width between the parkway supports.

The easements of the interceptor sewer are satisfactory, except for the notes we have made on Schedule "D".

I trust the above provides all answers needed to proceed expeditiously with an execution of the site agreement between the City and the Government.

Sincerely,

MICHAEL J. NORTON
Regional Administrator

cc:

File

Field

Reading 8P

D&C-R

8P

8A

Frank Rhea ✓

SPCC: DLGess:lr



W. H. McNICHOLS, JR.
Mayor

CITY AND COUNTY OF DENVER

DEPARTMENT OF PUBLIC WORKS

DESIGN ENGINEERING DIVISION
CITY AND COUNTY BUILDING
DENVER, COLORADO 80202

May 2, 1973

Mr. Frank Rhea
Facilities Project Manager
U.S. Mint
320 West Colfax Avenue
Denver, Colorado 80202

Re: U.S. Mint Agreement

Dear Mr. Rhea:

Transmitted herewith for your review and comments are two copies of the Schedules referred to in the proposed agreement with the exception of GSA Form 1714, "Equal Opportunity Clause", which I assume you will furnish.

The agreement states that the City will obtain agreements with the Public Service Company, Mountain Bell, and the Denver Water Board to furnish the necessary utilities for the proposed U.S. Mint. To accomplish this end, separate drawings for each existing utility have been prepared in order that you can designate on each sheet exactly what your requirements are. Specifically, what utilities will have to be removed from the site? What utilities will have to be placed underground? What utilities will be required for the new construction? Where will these new utilities be located? What will be the required size of all utilities? And, finally, will any special protective coverings of any type be required for the new installations? Any other information that you may have regarding these utility matters will be greatly appreciated.

Upon receipt of this information, we will draw all requirements on the basic maps and return them to you for your approval. Following this, we will contact all affected utility companies, present them a copy of your requirements, and begin negotiations to formalize an agreement between the City and each utility company.

One matter in the contract which is difficult to understand is on Page 7, (e), "power lines which are relocated or constructed in proximity to the assembled site", please designate exactly what is meant by proximity and what lines should be placed underground to obtain the greatest environmental aesthetics.

Your early attention to these matters will be of great assistance in bringing about the execution of the agreement between the City and the Federal Government.

Very truly yours,

John J. Stamm, P.E.
Director of Design Engineering

JJS:dt

att.

GENERAL SERVICES ADMINISTRATION
REGION 8

RECEIVED //

MAY 15 1973

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

Betty
I thought you
might like to see the
attached letter —
Miles

W.H. McNichols Jr.
MAYOR



City and County of Denver
RECEIVED
CITY AND COUNTY BUILDING • DENVER, COLORADO • 80202

MAY 15 1973

AREA CODE 303 297-2721

May 8, 1973

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

8A



Mr. Michael J. Norton
Regional Administrator
General Services Administration
Denver Federal Center
West 6th Avenue and Kipling
Denver, Colorado 80225

Dear Mr. Norton:

Thank you for your letter of May 4th. I too enjoyed having an opportunity to chat with you about the new Denver Mint project. I am hopeful that we are very close to finalizing our agreement with the Department of Treasury and the General Services Administration.

As you know, the technicians have been attempting to refine those final matters which would be included as a part of Schedule C in the March 26th draft. I am told that this refinement should reach the stage that will allow us to acquire the necessary commitments from the affected utility companies within the next few days. Mr. Frank Rhea has in his possession at this time individual drawings showing each existing utility in the subject area. He is in process of designating on each sheet the exact requirements. This will allow us to proceed with commitments from the subject utility companies in a very short time.

It appears that we are in complete agreement and can sign as soon as these technical details are completed. The City is most anxious to consummate our arrangements with the Federal government and to proceed at the earliest possible date with this important project.

Very truly yours,

W.H. McNichols, Jr.
W.H. McNichols, Jr.
MAYOR

For Action	For Information
Reply to be Prepared by:	
Prepare Reply for Signature of:	
REPLY DUE	
Coordinate Reply with:	
Incoming copy also sent to:	
Furnish copy of reply to:	

~~Subject:~~ Evaluation of Flood Hazard, New Denver Mint Site

1. The proposed site for the new Mint, as discussed in the Final Environmental Impact Statement for this project, is in Denver along the west bank of the South Platte River between the South Platte and the Valley Highway, and extending from Eighteenth Avenue to Speer Boulevard. Formal designation of this location as the site for the new Mint is being held in abeyance until thirty days have elapsed after issuance of the Final Environmental Impact Statement and until an agreement has been consummated with the City of Denver pertaining to acquisition of the site and conveyance of the property involved to the Federal Government by the City of Denver.

2. The proposed site is within the flood plain of the South Platte River. This situation would make the site untenable were it not for the fact that the Chatfield Dam and Reservoir, a major flood control project upstream of the site on the main stem of the South Platte, is being constructed by the Corps of Engineer and is scheduled for effective completion in calendar year 1973. Other preventive measures, as discussed later herein, will serve to provide protection against flooding ~~of~~ the proposed new mint, in addition to the protection afforded by the Chatfield Dam.

3. The Omaha District Office of the Corps of Engineer completed a flood plain study of the South Platte River in the Denver Metropolitan Region in August 1968. The hydrologic analysis in this study was updated to include the data from the flood of 1965 and is based upon reduced discharges resulting from operation of the Chatfield Dam. Per this study, an Intermediate Regional Flood (one percent probability, or an average frequency of once in 100 years) would produce a surface water elevation of 5,182 feet and a "Standard Project Flood" would produce a surface water elevation of 5,189.5 feet, both at the approximate site center.

4. The Corps of Engineers defines a "Standard Project Flood" as follows: "The standard project flood is representative of the critical concentration of runoff from the most severe combination of precipitation and snow melt, if pertinent, that is reasonably characteristic of the drainage basin involved." The Corps does not associate a specific frequency with a standard project flood, but Corps hydrologists have stated that the frequency would be in the order of once in 250-500 years. Such a flood is representative of the largest flood reasonably expected to occur at the particular location under consideration. ~~The Corps of Engineers does derive theoretical floods greater in magnitude than a standard project flood for the purpose of designing spillways for dams, in consideration of the catastrophic losses of life and property that would occur were a dam to fail suddenly because of water flows over the dam due to insufficient spillway discharge capacity.~~

In considering use of flood plains, the normal practice as recommended by the Corps is to protect buildings and other structures from damage by the Intermediate Regional Flood (100 year frequency). For this important Federal project, however, it is planned to provide protection against a flood in excess of the standard project flood.

5. The existing ground elevation of the proposed South Platte site at the site center and immediately adjacent to the river is 5,188 feet, with ele-

STU

vations increasing generally in the upstream direction and away from the river. The 100-year flood (elevation 5,182) would be contained completely within the River banks; the Standard Project flood (elevation 5,189.5) would rise to 1.5 feet above the bank and would flood a small portion of the site adjacent to the River. Planning for the new mint is based on siting the buildings and structures on the higher elevations away from the river, on placing fill, if necessary, to provide structural base elevations at least three feet above standard project flood water elevations, and to floodproof the structures three feet above ground elevations. Thus, the structures would be protected from flooding until water elevations rose to six feet above the standard project flood elevations. All of these measures in combination will provide an extremely high degree of protection against potential flood damage, and can be accomplished at reasonable costs.

Note: Per Executive Order 11296, dated August 10, 1966, requests for appropriations for Federal construction of new buildings, etc., are to be accompanied by a statement by the head of the agency on the findings of his agency's evaluation and consideration of flood hazards. Thus, it may be appropriate for Secretary Schultz, now or later, to sign a paper on this subject to OMB. Bob Fredlund has a copy of Ex Order 11296 and knows of its requirements. A final paragraph might be - -

"6. In consideration of the matters discussed above and the provisions of Executive Order 11296, dated August 10, 1966, it is the conclusion of the Department of the Treasury that construction of a new mint on the South Platte River site in Denver would not constitute an uneconomic, hazardous, or unnecessary use of a flood plain."

EIS - Pages - Discussion of Flood Aspects

Mr. Michael Norton

Regional Administrator

Denver Region, General Service Administration

Par. 2.3

Pages 8 thru 10



THE DEPARTMENT OF THE TREASURY

UNITED STATES MINT

88 FIFTH STREET
SAN FRANCISCO, CALIFORNIA 94103

OFFICE OF
ASSISTANT DIRECTOR
FOR WEST COAST
OPERATIONS

16 February 1973

Mr. Michael Norton
Regional Administrator
Region 8, General Services
Administration
Denver Federal Center
Denver, Colorado 80225

Dear Sir:

This letter is in response to your conversation on February 15, 1973 with Frank MacDonald, the Deputy Director of the Bureau of the Mint, wherein you requested information concerning the Treasury Department's evaluation of the potential flood hazard of the South Platte River site for the new Denver Mint.

Attached is a copy of a paper on this subject which the Treasury Department is submitting to the Office of Management and Budget. A similar and somewhat more detailed discussion of the flood hazard is contained in paragraph 2.3, pages 8 through 11, of the Final Environmental Impact Statement for the Denver Mint project.

We in the Treasury Department believe that the Chatfield Dam, in conjunction with the other planned protective measures, will provide such a high degree of protection against flooding of the mint structures that this aspect of the South Platte site is not a significant factor in weighing it against other possible sites in the Denver area. We realize that during a "standard project flood" the low areas adjacent to the South Platte might be flooded and that some interference with shipments by rail and truck could occur for a few days. This interference would not preclude the continued production of coins and



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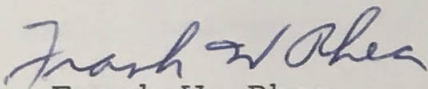
Mr. Michael Norton
Regional Administrator
Denver, Colorado

16 February 1973
Page 2

the probability of occurrence of a "standard project flood" is so remote that this possibility is not of major concern.

I trust that this letter provides the information you desire regarding the South Platte site flood hazard.

Sincerely,



Frank W. Rhea
Facilities Project Manager
Bureau of the Mint
Denver Mint
320 W. Colfax Avenue
Denver, Colorado 80204

FWR:gms
Encl

Evaluation of Flood Hazard, New Denver Mint Site

1. The proposed site for the new Mint, as discussed in the Final Environmental Impact Statement for this project, is in Denver along the west bank of the South Platte River between the South Platte and the Valley Highway, and extending from Eighteenth Avenue to Speer Boulevard. Formal designation of this location as the site for the new Mint is being held in abeyance until thirty days have elapsed after issuance of the Final Environmental Impact Statement and until an agreement has been consummated with the City of Denver pertaining to acquisition of the site and conveyance of the property involved to the Federal Government by the City of Denver.
2. The proposed site is within the flood plain of the South Platte River. This situation would make the site untenable were it not for the fact that the Chatfield Dam and Reservoir, a major flood control project upstream of the site on the main stem of the South Platte, is being constructed by the Corps of Engineers and is scheduled for effective completion in calendar year 1973. Other preventive measures, as discussed later herein, will serve to provide protection against flooding of the proposed new mint, in addition to the protection afforded by the Chatfield Dam.
3. The Omaha District Office of the Corps of Engineer completed a flood plain study of the South Platte River in the Denver Metropolitan Region in August 1968. The hydrologic analysis in this study was updated to include the data from the flood of 1965 and is based upon reduced discharges resulting from operation of the Chatfield Dam. Per this study, an Intermediate Regional Flood (one percent probability, or an average frequency of once in 100 years) would produce a surface water elevation of 5,182 feet and a "Standard Project Flood" would produce a surface water elevation of 5,189.5 feet, both at the approximate site center.
4. The Corps of Engineers defines a "Standard Project Flood" as follows: "The standard project flood is representative of the critical concentration of runoff from the most severe combination of precipitation and snow melt, if pertinent, that is reasonably characteristic of the drainage basin involved." The Corps does not associate a specific frequency with a standard project flood, but Corps hydrologists have stated that the frequency would be in the order of once in 250-500 years. Such a flood is representative of the largest flood reasonably expected to occur at the particular location *under* upon consideration. In considering use of flood plains, the normal practice as recommended by the Corps is to protect buildings and other structures from damage by the Intermediate Regional Flood (100 year frequency). For this important Federal project, however, it is planned to provide protection against a flood in excess of the standard project flood.
5. The existing ground elevation of the proposed South Platte site at the site center and immediately adjacent to the river is 5,188 feet, with ele-

Evaluation of Flood Hazard, New Denver Mint Site (continued)

uations increasing generally in the upstream direction and away from the river. The 100-year flood (elevation 5,182) would be contained completely within the River banks; the Standard Project flood (elevation 5,189.5) would rise to 1.5 feet above the bank and would flood a small portion of the site adjacent to the River. Planning for the new mint is based on siting the buildings and structures on the higher elevations away from the river, on placing fill, if necessary, to provide structural base elevations at least three feet above standard project flood water elevations, and to floodproof the structures three feet above ground elevations. Thus, the structures would be protected from flooding until water elevations rose to six feet above the standard project flood elevations. All of these measures in combination will provide an extremely high degree of protection against potential flood damage, and can be accomplished at reasonable costs.

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION



Region 8

Denver Federal Center

Denver, CO 80225

Project No. 72-124

New Denver Mint

February 23, 1973

RECEIVED

FEB 26 1973

OFFICE OF
SUPERINTENDENT
U. S. MINT AT DENVER

Mrs. Betty Higby
U. S. Mint
W. Colfax Avenue and Cherokee
Denver, CO 80204

Dear Betty:

As you know, Mr. Frank MacDonald recently asked for GSA's comments on the flood potential of the South Platte Site which has tentatively been selected for the new Denver Mint.

We believe that the importance of the new Denver Mint and the large amount of expensive specialized manufacturing equipment proposed for the facility warrant that every reasonable effort to prevent potential flood damage be taken. Based upon information available to us from the Corps of Engineers and written comments supplied to us by Mr. Frank Rhea, it is our feeling that the South Platte Site can accommodate the new Mint so long as appropriate and adequate provisions are made for flood-proofing. In this regard, we generally concur with the data in the final Environmental Impact Statement. We would suggest, however, that during the design stage, consideration be given to placing finish elevations at least five feet above the predicted water elevations of a standard project flood in lieu of the three foot figure used in the Environmental Impact Statement. This may be necessary along with flood-proofing all structures to an elevation of three feet above finish grade to further minimize the possibility of flood damage to the new Mint.

I hope this information is helpful in finalizing the new Mint site selection. As agent for Treasury, GSA stands ready to negotiate the agreement with City of Denver for the South Platte Site as soon as we receive official Treasury approval.

Sincerely,

MICHAEL J. NORTON
Regional Administrator

W.H. McNichols Jr.
MAYOR



City and County of Denver

CITY AND COUNTY BUILDING - DENVER, COLORADO - 80202

AREA CODE 303 297-2121

December 20, 1972

Mr. Michael J. Norton
Regional Administrator
General Services Administration
Denver Federal Center
Denver, Colorado 80226

Dear Mr. Norton:

Mayor McNichols is out of the City, so I shall bring you up to date on our efforts to resolve all items brought forth in your letter of November 29, 1972, addressed to him.

I am pleased to report to you that everything appears to be progressing well in this project. The Denver Board of Councilmen unanimously voted to appropriate the amounts of money we shall need to assemble the subject property at final reading on Monday night of this week. We are in a position to start the assembly process immediately after January 1, 1973. The total funds needed for this process are included in the 1973 budget. We have had some preliminary work underway by our Land Office, and I feel we can now move out with vigor.

The survey plat is in the process of being completed. Because of the recent prolonged period of inclement weather, the field work was somewhat delayed. It has now been completed and the preparation of the plat is being processed. I am told I will have the completed work in hand within the next week and will personally deliver it, with the other material you requested, to your office.

We have obtained the commitments that the gas, telephone, and electric lines will be relocated at no expense to the Federal Government. These are being reduced to writing at this time, and I shall be able to include copies in the information delivered to you.

It is my hope that this material will resolve all remaining questions and that a complete understanding will result. We stand poised to implement the project as soon as we can formalize the selection.

Transmitted to
Wash. 12/21/72
(Mienetto) 1:45 P.M.
to J. MacDonald

Mr. Michael J. Norton

December 20, 1972

Page Two

We look forward to working with you and members of your staff as we proceed. I believe the totality of enthusiasm of the official Denver City family is evidenced by the unanimity of the appropriating vote of the Board of Councilmen.

Sincerely yours,

John H. Henry

Administrative Assistant

cc: Mrs. Mary Brooks

✓ Mr. Greg Cavanaugh

Mr. Pat Murphy

November 29, 1972

Honorable W. H. McNichols, Jr.
Mayor of Denver
Denver, Colorado 80202

Dear Mayor McNichols:

Thank you for your letter of November 16, 1972, which confirmed the interest and the contribution the City of Denver is prepared to provide in assisting the Federal Government in acquisition of property west of the South Platte River as a site for the new Denver Mint.

It is my understanding that Mrs. Brooks, Director of the Mint, and other Treasury officials, met with you on November 20, 1972, to discuss this matter. The following comments reflect this meeting and Treasury and GSA's current views.

To insure there is no misunderstanding in this most important transaction, we will state the Federal Government's position by replying directly to the nine items discussed in your November 16, 1972, letter.

1. We regret that we cannot formally designate the subject site as that for construction of the new Mint until a few remaining matters, as discussed below, are resolved.
2. Of prime importance is our receipt of the survey plat delineating the property to be transferred to the Federal Government as previously requested in the fifth paragraph of our letter of September 5, 1972. This survey plat should show specifically the location of the planned 72-inch interceptor sewer, with any required easement.
3. As stated by Mrs. Brooks to you on November 20, 1972, Treasury may be able to provide no more than \$79,000.00 in reprogrammed funds, in addition to the \$1.5 million appropriated for site acquisition. Before the \$79,000 mentioned above can be made available, it will be necessary to secure the approval of the cognizant Congressional Committees and the Office of Management and Budget.

4. Again, as agreed to by Mrs. Brooks on November 20, 1972 all existing secondary storm and sanitary sewers crossing the site, generally in an east-west direction, will be relocated if necessary during the site preparation phase at the expense of the Federal Government. This does not include any costs involved in the existing main trunk sewer located parallel to the South Platte River, nor the planned new 72 inch interceptor sewer.
5. We concur; however, we will need a firm commitment that the water lines will be removed from the property at no expense to the Federal Government.
6. Again we concur, provided we receive a firm commitment that the gas and electrical power lines will be relocated at no expense to the Federal Government. In this connection, existing on-site power lines must be relocated off-site and these relocated lines and any future power lines adjacent to the site should be placed underground to provide proper site aesthetics.
7. We concur.
8. We concur; however, the proposed Market-Blake Parkway location should be shown on the survey plat.
9. We concur.

We trust the above meets with the approval of the City of Denver. To insure timely progress on the design and construction of the new Mint, we need to reach agreement on the matters discussed herein so that designation of the subject site for the new Denver Mint can be formalized not later than December 22, 1972. In this regard we would like to receive the survey plat as soon as possible.

Sincerely,

MICHAEL J. NORTON
Regional Administrator

cc: File, Field, Reading 8P, D&C-R, 8A

8PC:DLGess:lr

A. L. G.
BN

SEP 05 1972

Honorable W. H. McNichols, Jr.
Mayor of Denver
Denver, Colorado 80202

Dear Mayor McNichols:

Recently, representatives of our Washington Office met with officials of the Department of the Treasury to discuss the progress and problems incident to the acquisition of a site for the new Denver Mint.

The Department has completed a careful review of all of the factual data including the advantages and disadvantages of all aspects of the nine sites in the city of Denver which were investigated and reported upon by this office. We have been informed by Department officials that they have tentatively selected the South Platte River site for the new facility. As you know, a draft environmental impact statement for this project was filed recently under the National Environmental Policy Act.

To utilize this site, it will be necessary to acquire approximately 20 acres of privately owned property in addition to the 13 acres offered by the city of Denver. The additional property is held by approximately 35 separate owners.

Our preliminary planning shows that to accommodate the proposed facility on this site, portions of 7th, 8th, 9th and 10th Streets must be vacated, Water Street rerouted, and utility lines and storm sewers relocated. Additionally, it will be necessary to obtain the maximum site width possible in the vicinity of the 23rd Avenue bridge and the proposed Market Street Throughway will need to be realigned so that the required right-of-way would not project north of West 19th Avenue extended. The 72-inch interceptor sewer, which we understand is proposed for location in the approximate center and running the entire length of the site parallel to the Platte River, would be incompatible with the construction of the large building required for the new Mint and an alternate routing for this facility will have to be developed.

To assure a full understanding by all parties as to the exact size and configuration of the entire parcel which will be acquired, it is requested you furnish this office a survey plat of the subject areas. This plat should be prepared by a registered surveyor and should show the metes and bounds of the property, easements, and existing and planned utility and sanitary installations. A legal description of the assembled property should be provided with the survey plat.

The Department of the Treasury has received an appropriation of \$1.5 million and has made available to GSA that sum for site acquisition. We believe that it will cost substantially in excess of that amount to accomplish the acquisition of the privately owned properties in the South Platte River site and to pay benefits as required by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, to the persons and businesses who must be displaced from the site. Therefore, in order to consider further the development of the proposed project at this location, it will be necessary for the city of Denver to participate with the Government in the acquisition of this site. The scope of this participation would involve conveyance of the city's property and the acquisition of other privately owned property by the city and conveyance to the Government at a total cost to the Government not to exceed \$1.5 million. The city would thus be required to undertake at its expense, in addition to acquiring the individual properties needed, the relocation of all occupants from the site as well as the relocation of Water Street.

No firm decision or commitment can be made on the location of the Mint or other aspects of the project before a final environmental impact statement has been prepared. However, since time is of importance in resolving the matter of site selection, we believe it would be mutually advantageous for representatives of the city and of this agency and the Treasury Department to proceed promptly with the development of a provisional agreement for the acquisition of the site. If you agree, please let us know at the earliest possible time so work on the agreement can begin.

Sincerely,

JOSEPH L. COHEN
Acting Regional Administrator

cc: 8P; 8PB; (8PC-Dave Gess) 8PG; 8PR
Reading - 8P
Index - 8PR
File - 8PRA
Chron - 8PR

8PR/BEReed/gm 9/1/72 X4358

Concurrence:

8PRA _____ 8PC _____ 8L _____ 8P _____

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION



Region 8
Denver Federal Center
Denver, Colorado 80225

January 26, 1972

Mr. William C. Dickey
Deputy Assistant Secretary
Department of the Treasury Headquarters
Main Treasury Building
Washington, DC 20220

Dear Bill:

As requested this date, enclosed is a print of the South Platte Site which has been marked up to show approximate existing elevations, dimensions, property owners (who are presently being contacted) and potential flood problems. Our investigation of this site is not complete; however, the following are some of the aspects under review.

South Platte River Site - Potential Flood Exposure.

This site is exposed to flood water from the adjacent South Platte River. A portion of this site was flooded by the 1965 flood which was considered to be a "100-year flood."

If a Standard Project Flood were to occur tomorrow approximately 25% of the 13 $\frac{1}{2}$ acres offered by the City of Denver would be covered with water from a few inches up to 36 inches deep. Approximately 40% of the pie-shaped ten-acre area located directly north of the City of Denver property and east of Water Street would be flooded during a Standard Project Flood. Even with the Chatfield Dam completed, the Corps of Engineers estimate a Standard Project Flood would produce a water level within one foot of the 1965 flood level at the point where 7th Street intersects the South Platte River. (See R. G. Burnett, Chief, Engineering Division, Corps of Engineers, letters dated July 16 and 23, 1971).

The Corps of Engineers define a Standard Project Flood as, "a flood which is representative of the largest flood reasonably expected to occur and would be exceeded only on rare occasions." The importance of this project warrants protection at least against a Standard Project Flood.

Subsurface Water

Two test holes were drilled on November 10, 1971 in a low area directly north of site offered by the City of Denver. Free water was developed

2.

at 8-1/2 feet below the surface at the approximate elevation of 5,180. This figure is considered to be of no real value because the water table at this site will vary considerably from season to season depending on river flow as well as underground water runoff from the high ground to the west.

Utilities

The South Platte Site has high voltage transmission lines running down the center of the site. Possible relocation of these lines and the cost involved are now under investigation.

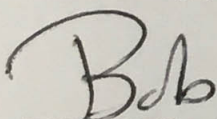
This site also has sizable (five-foot diameter) storm sewer lines crossing it which may present a problem. One line is located at 7th Street and the other runs under the center of site offered by the City of Denver. These matters also are under investigation.

Site Size

There exists some confusion as to the actual size of the site offered by the City of Denver. The east property line (that bordering the river) is not clearly established due to unknown actual location of the South Platte River channel and railroad easements. Apparently the 13.2 acres offered by the City included approximately 1.8 acres which is railroad easement. Actual area will have to be determined by a formal site survey if this site is selected.

Photographs of the other sites previously discussed are being processed and will be forwarded as soon as they are received.

Sincerely,



ROBERT E. WAGGONER
Regional Administrator

Enclosures

Site Survey Information File

GAO File

Irene,

This is the cover letter and list of questions I would like to have you send to West Point via the telecopier. Frank knows we are requesting the information. Please call if you have questions.

Thank you

Larry Johnson

Transmitted to WPO on 6/9 @ 1:58 P.m.

To - Harry Edwards



UNITED STATES GENERAL ACCOUNTING OFFICE
REGIONAL OFFICE
SUITE 300-D, 2420 W. 26TH AVENUE
DENVER, COLORADO 80211



JUN 9 1976

Mr. Frank Rhea
United States Mint
320 W. Colfax Avenue
Denver, Colorado 80204

Dear Frank:

The items presented on the attached listing are areas we are pursuing as alternatives for increasing production at the West Point Depository. Our purpose in addressing these alternatives is to determine whether the changes are physically possible, to get indications of costs involved, and to identify potential problems that may result from these changes.

We request that you provide the attachment to responsible officials at the West Point Depository. Since we are under time constraints to develop our report, we would appreciate a response to these questions as soon as possible.

If West Point officials have any questions, they can contact me at FTS 327-4621.

Sincerely yours,

Duane A. Lownsberry
Duane A. Lownsberry
Supervisory GAO Auditor

Attachment

Future Alternatives for Consideration

1. If increased production levels were to be required at West Point, additional production equipment would be needed. ITA and Mint provided spacing requirements indicate that 8 Bliss coin presses could be installed in one compartment. Associated equipment (riddlers, counting stations, etc.) would require additional space. We would like to have your comments on the feasibility of this alternative, including costs to convert compartments, add electrical capacity and any other changes that would be necessary.

2. In considering the above, we are assuming the compartments currently being used for such things as storage of coins, miscellaneous equipment, and part of the sweeps and silver would be available for production use within the next 5 to 10 years.

3. Assuming that high cent demands occur in the future and that the West Point Depository is maximized for cent production along the lines of this alternative, would an additional increment of 8 coin presses be feasible?

Present Alternatives for Consideration

1. During previous discussions, Mr. Jim Edwards, Officer in Charge, stated the existing 20 Mint coin presses could be replaced with 16 Bliss coin presses in the existing press room. This appears practical based on ITA's assessment of space requirements for the Bliss presses.

2. Using the capacity factors provided by the Bureau of the Mint, we calculate the capacity of 16 Bliss coin presses at about 2.4 billion coins annually. Also, using the capacity factors you provided us, we estimate a need for one additional coin riddler and one additional counting station, to produce this volume of coins. Is space available in the existing press room or elsewhere in the Depository to accommodate this additional equipment?

3. Are there any structural, electrical, or materials handling limitations preventing implementation of this alternative?

4. Assuming that production at this level is needed to supply demand for cents; i.e., no permanent storage would be required, what storage requirements would exist for in-process blanks, condemned material, and temporary coin storage? Would the present 6 compartments devoted to these uses be adequate?

UNITED STATES GOVERNMENT

Memorandum

TO : All Division Heads

DATE: April 6, 1976

FROM : Frank W. Rhea, *FWR* Facilities Project Manager, Bureau of the Mint

SUBJECT: General Accounting Office Representatives at Denver Mint

The following are representatives of the GAO who will be at the Mint for approximately two months as part of their survey:

Duane A. Lownsberry, Team Chief

Gary Johnson, Auditor

Nikki Tinsley, Auditor



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THE DEPARTMENT OF THE TREASURY

WASHINGTON, D.C. 20220

OFFICE OF

DIRECTOR OF THE MINT

April 5, 1976

Superintendent, U. S. Mint, Philadelphia, PA 19106
Superintendent, U. S. Assay Office, New York, NY 10005
Officer in Charge, U. S. Assay Office, San Francisco, CA 94102

Subject: General Accounting Office (GAO) Survey of Mint Facilities

1. In accordance with a request of the Chairman of the Senate Committee on Banking, Housing and Urban Affairs, the GAO is conducting an in-depth survey of the entire spectrum of Bureau of the Mint operations, with the purpose of examining the requirement and justification for expansion of Mint facilities and production capacities, all related to the question of whether a new Denver Mint is needed. The GAO has already started this survey by discussions with Frank MacDonald and by visiting the present Denver Mint, the San Francisco Assay Office and the San Francisco Old Mint. GAO personnel will be visiting Philadelphia and New York soon, probably within the next three weeks, but no schedule has been established as yet by Mr. George A. Jahnigen, the Officer in Charge of the GAO survey team. Frank MacDonald has designated the undersigned as the prime liaison officer with GAO for the duration of this survey.

2. The General Accounting Office has requested the following detailed information on current facilities and capacities as a starting point in its survey: (For New York Assay Office, information is required only on the West Point coining operation.)

Production Capacities

(For Philadelphia, information previously provided for the RTI study should suffice.)

- Base on current machines, configurations, materials handling systems, etc.

- Identify capacity for each process step - i.e., blanking, annealing and cleaning, upsetting, coining, count and review, and coin storage.

Building Layouts

Identify all production areas, administrative space, storage areas, loading docks, etc.



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Materials Handling Systems

Show how materials are brought into facility, in-process storage, method of movement from one process station to another, and shipments out of facility. (Include forklifts, bridge cranes, other cranes, elevators, conveyors - i.e., all means of moving materials through the facility.)

Constraints Which Inhibit Expansion of Capacity

Building

- Space limitations
- Structural limitations, particularly floor-load limitations
- Mechanical and electrical

Materials handling

- Loading dock limitations
- Elevators
- Conveyors
- Cranes
- Storage, particularly in respect to in-process storage

Limitations due to compliance with OSHA and EPA laws and regulations.

Site Plan

Annotate to show use of outside areas.

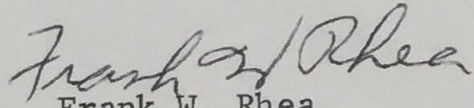
Planned Improvements

Identify approved and funded underway changes in number of machines, layouts, and materials handling that will affect production capacity.

3. The General Accounting Office plans to complete its survey and make a report to the Senate committee by August 1, 1976. The General Accounting Office has requested that the above information be provided expeditiously; therefore, it is requested that this information be ready for presentation to GAO not later than April 19, 1976. The General Accounting Office will require two copies of this data, and it is recommended that another complete copy be retained in the offices of the addressees.

For Philadelphia and New York, the data should be held for direct transmission to the GAO representatives at the time of their on-site visits. For San Francisco, it is requested that two copies of the data be transmitted to me for further transmittal to GAO. One copy of the San Francisco data will be provided to the San Francisco GAO representative after review and approval by myself and the Acting Director of the Mint.

Sincerely,



Frank W. Rhea

Facilities Project Manager
Bureau of the Mint

cc:

Frank H. MacDonald

George G. Ambrose

G40 File

